Defining the Core Competencies of U.S. Cavalry

A Monograph
by
MAJ J. Bryan Mullins
U.S. Army

MENS EST CLAVIS VICTORIAE

School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas
AY 03-04

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

MAJ J. Bryan Mullins

Title of Monograph: Defining the Core Competencies of U.S. Cavalry

Approved by:

_____   Monograph Director
Christopher Gabel, Ph.D.

_____   Director
COL Kevin M. Benson   School of Advanced
                                                Military Studies

_____   Director
Robert Baumann, Ph.D.   Graduate Degree Program

Report Documentation Page		Form Approved OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE **26 MAY 2004**	2. REPORT TYPE	3. DATES COVERED **-**
4. TITLE AND SUBTITLE **Defining the core competencies of U.S. Cavalry**		5a. CONTRACT NUMBER
		5b. GRANT NUMBER
		5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S) **Jeffrey Mullins**		5d. PROJECT NUMBER
		5e. TASK NUMBER
		5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **US Army School for Advanced Military Studies,250 Gibbon Ave,Fort Leavenworth,KS,66027**		8. PERFORMING ORGANIZATION REPORT NUMBER **ATZL-SWV**
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)
12. DISTRIBUTION/AVAILABILITY STATEMENT **Approved for public release; distribution unlimited**		
13. SUPPLEMENTARY NOTES		

14. ABSTRACT
This monograph examines the recent Army trend to emphasize reconnaissance over security and economy of force in US cavalry doctrine and resourcing decisions. Since the late 1980s the Army has deliberately moved towards lighter, more stealth based reconnaissance in its heavy battalions and brigades. This development has recently accelerated with the publication of a new family of manuals by Fort Knox that offer insight into the radically different techniques necessary for success with these formations. Why has the Army moved in this direction, is it the correct decision, what modifications need to be made, and what can we do to make the transition more effectively? Chapter One explores the reasons why this change is happening now, and why it is so difficult to effect dramatic change within the cavalry community. New threats, operational environments, and technology are shaping American ideas on future conflict, and Army and cavalry concepts are along for the ride. This change imperative is encountering the conservative traditions embodied in the cavalry community and producing friction that delays acceptance of the new focus. Chapter Two and Three examine modern Western cavalry within a wide historical context. The German experience before and during World War II is offered as a case study for a reconnaissance focused force with excellent doctrine that seemed to loose its relevance in the reality of combat. The US experience from the Second World War to Operation Iraqi Freedom illustrates the challenges associated with attempting to optimize a force for a specific mission. Chapter Four provides an overview of the current debate within the cavalry community. Training cavalry leaders and experts is problematic; few systems are in place to do so, and then the Army at large does not respect and utilize this unique capability. Solutions are often offered by a wide range of interested parties, many of whom are not qualified to address the problem systematically and dispassionately Chapter Five presents seven conceptual principles of cavalry distilled from this study, and a short list of recommendations. US cavalry must embrace reconnaissance as its core competency and focus institutional effort on making this work with the organizations and equipment we have on hand for the immediate future.

15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**1**	**113**	

Abstract

DEFINING THE CORE COMPETENCIES OF U.S. CAVALRY by MAJ J. Bryan Mullins, US ARMY, 109 pages.

This monograph examines the recent Army trend to emphasize reconnaissance over security and economy of force in US cavalry doctrine and resourcing decisions. Since the late 1980s the Army has deliberately moved towards lighter, more stealth based reconnaissance in its heavy battalions and brigades. This development has recently accelerated with the publication of a new family of manuals by Fort Knox that offer insight into the radically different techniques necessary for success with these formations. Why has the Army moved in this direction, is it the correct decision, what modifications need to be made, and what can we do to make the transition more effectively?

Chapter One explores the reasons why this change is happening now, and why it is so difficult to effect dramatic change within the cavalry community. New threats, operational environments, and technology are shaping American ideas on future conflict, and Army and cavalry concepts are along for the ride. Information Age warfare is a big deal in Washington, D.C. at the dawn of the 21st Century, and information is the raw material that drives this new vision of operations. Current Army organizations struggle with reconnaissance, and new concepts are driving improvement and new force organizations to make up the difference. This change imperative is encountering the conservative traditions embodied in the cavalry community and producing friction that delays acceptance of the new focus.

Chapter Two and Three examine modern Western cavalry within a wide historical context. The German experience before and during World War II is offered as a case study for a reconnaissance focused force with excellent doctrine that seemed to loose its relevance in the reality of combat. The Germans understood that ground reconnaissance required organic combat power, but this combat power was then utilized in ways specifically denounced by their doctrine, but necessitated by the operational and tactical situation faced by local commanders. The US experience from the Second World War to Operation Iraqi Freedom illustrate the challenges associated with attempting to optimize a force for a specific mission. Which set of conditions do you pick to optimize for? The simpler tactical combat of World War II, or counter-insurgency from Vietnam, or both at the same time? What organizations, doctrine, and training worked in the past, and what needed modification once tested by a non-cooperative opponent? Why does US cavalry practice seem to slide naturally away from reconnaissance and towards security and economy of force? Sixty years of combat experience offer some insight to these questions.

Chapter Four provides an overview of the current debate within the cavalry community. Training cavalry leaders and experts is problematic; few systems are in place to do so, and then the Army at large does not respect and utilize this unique capability. Solutions are often offered by a wide range of interested parties, many of whom are not qualified to address the problem systematically and dispassionately. Most ideas for improvement focus on new equipment and organizations, better training and employment, or new concepts and doctrine, with very little in the last category. It seems that many of the best minds waste time defending doomed concepts or refining the best MTOE rather than redefining cavalry and its relevance in the information age.

Chapter Five presents seven conceptual principles of cavalry distilled from this study, and a short list of recommendations. US cavalry must embrace reconnaissance as its core competency and focus institutional effort on making this work with the organizations and equipment we have on hand for the immediate future.

Appendix A and B offer additional historical case studies and foreign doctrinal examples, including the US in Desert Storm, the French in 1940, and Soviet reconnaissance doctrine from the late Cold War.

TABLE OF CONTENTS

CHAPTER ONE

INTRODUCTION

Methodology

Cavalry forces of the United States Army are in the middle of a period of great change. Since the early 1990s there has been a progressive movement towards lighter reconnaissance forces at the expense of heavy, combat capable units and platforms. This is a process that has been accelerated by the fielding of the Stryker brigades with their organic Reconnaissance Surveillance Target Acquisition (RSTA) squadrons and the publication of a series of doctrinal manuals by Fort Knox that, for the first time in over sixty years, acknowledge a distinct difference between heavy and light cavalry.[1] These changes are occurring against a backdrop of debate on the future combat system (FCS), the contemporary operating environment (COE), Army transformation, and the challenges outlined in Joint Vision 2020. Many officers feel that this current trend towards passive surveillance is just getting started, and this bothers a number of traditionalists.

Is the US Army making a mistake by embracing light, passive reconnaissance units at the expense of traditional, more robust, combat capable forces? What is the right mix at what level, and what does the Army need to do to successfully implement this new focus and the programs that should go along with it?

This monograph demonstrates that both types of reconnaissance forces (stealth and aggressive) are required at different times and places within our force structure, and that security and economy of force missions no longer need to be the special domain of cavalry; reconnaissance is the only core competency of cavalry. Reconnaissance at the tactical level often

---

[1] United States Army, *FM 3-20.98 Reconnaissance Platoon* (Washington, D.C.: Department of the Army, 2002), 1-2 to 1-3. This concept was reinforced with the publication of *FM 3-20.971 Reconnaissance Troop* and *FM 3-20.96 RSTA* at the same time. All three of these manuals were officially published in December 2002. Unfortunately, they would probably benefit from significant revision based on 3rd Infantry

requires combat and rapid tempo, and the very firepower and protection that enable effective intelligence gathering tempt maneuver commanders to employ their scout elements in secondary roles. Successful reconnaissance requires a delicate mix of forces and capabilities, and the knowledge and discipline to employ cavalry in its primary mission. Other forces need to be resourced and trained to assume the security and economy of force role.[2]

The first half of this monograph will present the historical context of this argument, offering an alternative doctrine and historical case study from the German Army during the Second World War, and salient examples from the US Army from World War II, Vietnam, and Operation Iraqi Freedom. The historical case studies will focus on pre-conflict doctrine, unit organization and equipment, and combat employment, and how real world experience drove change in these areas. Special attention will be given to the debate over the primacy of reconnaissance versus trinity employment of cavalry forces, and disconnects between pre-war thought and actual operational employment.[3] If cavalry was employed differently than envisioned in pre-war doctrine, what seemed to drive this change? This historical journey should illustrate many of the conclusions reached at the end of the monograph.

The second half of the monograph focuses on the role played by our institutional base in limiting the effectiveness of our current light cavalry organizations, and what we need to do to sell this transition to a hostile crowd. Until recently, doctrine refused to acknowledge the very existence of light cavalry as a separate and distinct capability within the heavy force. All cavalry was to be employed the same way for the same missions, regardless its equipment and echelon.

Division's experience in Operation Iraqi Freedom and extensive involvement by the Army in occupation duty since the overthrow of Hussein's regime.

[2] A process that is already happening across the Army. After heavy battalion scout platoons lost their Cavalry Fighting vehicles, combat platoons of tanks or Bradleys have been employed to secure the main body from probing enemy eyes at the Combat Training Centers (CTCs). A new term, counter-reconnaissance, was born from this development. Many of the scenarios briefed to illustrate the capabilities of the Stryker Brigade emphasis the value of this unit, or component companies and battalions, in an economy of force role, allowing the overall maneuver commander to mass combat power to defeat an enemy at decisive points.

[3] Trinity in this context refers to the traditional vision of the cavalry role as a reconnaissance, security, and economy of force asset.

Hopelessly out of date platoon and troop mission training plans (MTP) compound the problem; they do not acknowledge or address the radically different techniques necessary for success in the light platoon and troop. They focus instead on heavy force tactics, techniques, and procedures (TTPs) and are seemingly written to guarantee success in Vietnam or Cold War Germany rather than the wide range of situations that US forces will confront in the Twenty-First Century. Courses designed to teach specific employment of cavalry are prisoners of this "one size fits all" mentality, with heavy and light leaders going through the same generic program of instruction. No mobile training update teams have gone out to tactical units to share the significant changes introduced in the recent wave of field manuals. The curriculum (to include electives) at the Command and General Staff College (CGSC) and the Armor Pre-Command Course for battalion and brigade commanders does not emphasize this radical change in approach, nor teach how to integrate infiltration of reconnaissance elements into the overall combined arms effort. Only the hard school of the Combat Training Centers (CTCs) and recent combat experience force operational units to come to grips with the intricacies of light cavalry employment. The conclusions and recommendations suggest methods to reduce this institutional and organizational resistance to embracing the new face of cavalry in the US Army.

The appendices contain two additional views of cavalry employment and a limited glimpse of the US cavalry experience in Desert Storm. French cavalry doctrine and organization was rationally constructed in the 1930s to mesh with operational and strategic realities, but when it came time for execution, the branch failed its partners. Soviet reconnaissance doctrine during the Cold War was a logical extension of German WW II doctrine, updated to match new technologies, the industrial base of a modern great power, and extensive experience in a variety of combat situations. The wartime experiences of 2-4 Cavalry in Desert Storm demonstrate the challenges faced by a trinity force in a nearly perfect environment for its employment, suggesting better models for education and training of legacy heavy cavalry units and leaders.

What is Driving This Current Change?

Why has the United States Army moved to a radically new cavalry force structure throughout the 1990s? What caused the significant shift in cavalry thought that produced the RSTA squadron rather than a modified heavy division squadron? Answers to these questions are not simple; significant change in any large organization is driven by a myriad of factors. The end of the Cold War and reduction in size of the US Army in the early 1990s started the process. A return to an expeditionary mentality combined with a hunt for new threats forced Army leaders to reexamine the organizations and doctrine they had constructed to fight the Soviets in a mechanized, conventional war. As the Army went from eighteen to ten active duty divisions, solutions to new problems needed to include fewer soldiers. Heavy battalion scout platoons continued to transition from M3 Cavalry Fighting Vehicles to HMMWVs, two of the three cavalry regiments were deactivated, and a new, light 2nd ACR was established at Fort Polk based around a HMMWV family of vehicles as place-holders until the Army decided how they would resource a new cavalry for the Twenty-First Century. In 1999 the first operational brigade reconnaissance troops (BRTs) were established in First Infantry Division stationed in Germany, and again, HMMWVs were used as a compromise solution awaiting future technical solutions; the BRT solution was also favored because it was created out of already existing resources and was a small, unobtrusive organization.[4] It was not the solution favored by Fort Knox (which wanted a standard heavy cavalry troop), but what the Army could resource at the time.[5] Force

---

[4] This process was wrapped up in the Limited Conversion Division (LCD) Phase I concept. Heavy battalions lost a line company, heavy mortar platoons lost two guns and a FDC, and the battalion scouts were to surrender four trucks with personnel to create the twelve-vehicle BRT. A handful of additional personnel and vehicles would have to be resourced to provide the BRT headquarters platoon. 1st Infantry Division somehow managed to keep their scout platoons at full strength and still stand up two BRTs, a process that did not occur uniformly across the Army. The result is a range of some heavy battalion scout platoons, some with six vehicles, and some with ten. The new model in the RSTA recce platoon is four vehicles and 25 personnel.

[5] Major Matt Moore, interview by author, 24 October 2003, Leavenworth, Kansas. Major Moore was the second commander of the 2nd Brigade, 1st ID BRT and the cavalry trainer for Ops Group C, BCTP from 2001 to 2003.

structure and platforms in the mid-90s had more to do with compromise, short-term reaction, and what was possible, rather than well thought out desires.

Parallel with efforts to field brigade cavalry, transform battalion scouts to stealth platforms, and redefine the 2nd ACR, the Armor community, Department of the Army, and Department of Defense began to examine the larger implications of the end of the Cold War and emerging technology. For the most part, in a future conflict, US forces would deploy into theater by ship or air. We did not anticipate major combat in CONUS or Western Europe, nor did we expect the two maneuver brigades of Second Infantry Division to fight a new Korean war by themselves. This implied more strategic lift and if possible, lighter and more deployable forces. A string of recent peacekeeping and peacemaking operations, to include Panama, Haiti, Somalia, Bosnia, and Kosovo, also reminded us that we would face a different set of challenges and opponents than the Warsaw Pact in Central Europe. A series of Joint and Army white papers were written that attempted to define the future threat, environment, and capabilities required for success, and these ideas began to trickle into doctrine and conceptual force structure. The Stryker Brigade with its organic Reconnaissance Surveillance Target Acquisition (RSTA) squadron was the first and most visible result for the Army maneuver community, and served as a pre-cursor of what to expect in the Unit of Action (UA) and Unit of Employment (UE).

A number of excellent monographs, books, and white papers define this vision of the Joint threat environment through 2020, and this monograph will not recover this ground. What is more important here is to mention that not everyone agrees with some of the key operational concepts developed to deal with this environment. Dr. Williamson Murray, an expert on military transformation, worries about the 1996 version of Joint Vision 2010. He cites retired Marine LTG Paul Van Ripper's assessment that it is a "collection of bumper stickers and advertising slogans", contains very little of intellectual value, and is not based on serious historical and

operational study.[6] The four key concepts of US operations in the future; dominant maneuver, precision engagement, focused logistics, and full-dimension protection; are to be tied together by information superiority to achieve massed effects-full spectrum dominance.[7] Dr. Murray is not impressed, and Dr. Elizabeth Stanley-Mitchell, a retired Military Intelligence officer and teacher of Security Studies at Harvard, shares his concerns.

Dr. Stanley-Mitchell focuses on the stated requirement for information dominance to drive American warfare in the Twenty-First Century, and doubts this is feasible in some conflicts. She argues that the Department of Defense focuses on the conventional opponent while virtually ignoring unconventional opponents hiding in cities and among a friendly or neutral population.[8] She also claims that information dominance is almost impossible to achieve; it is not just about US forces knowing everything, but they must know much more than their opponent, implying an offensive and defensive aspect to the problem. Due to international media, internet access, civilian satellite and cellular telephone service, and an elusive opponent actively seeking sanctuary and avoiding detection, gathering and denying intelligence in some environments becomes very difficult.[9] "In short, the Army's goal of seeking information dominance on the future battlefield is profoundly unrealistic…[it] must be ready to operate in an environment lacking the information dominance it always assumes it will have."[10] In fact, the enemy is likely to have local information dominance over US forces, which are compelled to operate in the open among the population they are attempting to influence and protect, as illustrated in Iraq today.[11] She echoes Murray's attack of Joint and Army white papers, charging them with spotty research, little intellectual rigor, and poor articulation.[12] The DOD quest for information dominance exists

---

[6] Williamson Murray, "Does Military Culture Matter?," *Orbis*, Winter 1999, 149.
[7] Ibid, 149.
[8] Elizabeth A. Stanley-Mitchell, "The Digital Battlefield: What Army Transformation Efforts Say About Its Future Professional Jurisdiction" In *The Future of the Army Profession*, Ed. Don M. Snider and Gayle L. Watkins (New York: McGraw-Hill Primis Custom, 2002), 127-154, 143.
[9] Ibid, 145-46.
[10] Ibid, 146.
[11] Ibid, 129.
[12] Ibid, 140.

within a framework that pursues network centric warfare with perfect sensor-shooter linkage; the equation looks something like: ISR (intelligence, surveillance reconnaissance) + C4 (command, control, computers, communication) + Precision Strike = Rapid, Decisive Victory.[13] According to the Joint Vision, if you maximize each variable, the result is victory; this is a concept that makes Murray and Stanley-Mitchell uneasy on a number of levels, and if perhaps overstated or guilty of oversimplification, does provide food for thought.

Academics are not the only people finding disconnects in the theory driving Army and DOD transformation. Major Louis Rago III worries that until the technology and force organization envisioned for the Objective Force are reality, cavalry doctrine and concepts should await their arrival.[14] Major Rago concludes that US concepts for the Twenty-First century invalidate the requirement for active security and economy of force assets.[15] Information dominance precludes surprise, mitigating the requirements for security and reserve forces. US forces will avoid contact except at decisive points, therefore eliminating the need to conduct economy of force missions. Major Rago further analyzes the envisioned threat environment within the context of the Force XXI concepts, and identifies the following disconnects: enemy actions will be harder to anticipate, making local surprise much more likely; opponents can achieve niche technological superiority, threatening the theoretical underpinnings of net centric warfare; and warfare will occur in locations and under conditions that make sensors less useful (urban, mixed civilian-irregular forces).[16] Despite thorough analysis, Major Rago seems to oversimplify the ideas contained in the Joint 2020 vision, concluding that the requirement for security and economy of force will completely go away. A different conclusion that could be reached from the same documents is that these requirements will be minimized, and that generic

---

[13] Ibid, 142.
[14] Major Louis L. Rago, III, "Cavalry Transformation: Are We Shooting the Horse Too Soon?" (Leavenworth: School for Advanced Military Studies, 2002), 66.
[15] Ibid, 33-35. I do not claim this is what the body of Army concept documents assert; this is Major Rago's interpretation of those sources.
[16] Ibid, 28-29.

maneuver forces can perform the residual missions, leaving cavalry available to focus on ISR. Even these conclusions are suspect, but seem to remain more honest to Joint Vision 2020 and the Army white papers on transformation and the Objective Force.

Regardless their intellectual merit, these Joint concepts are driving Army and DOD transformation, and obviously, successful ISR is a cornerstone to success in this construct. Perhaps information dominance is too unrealistic a goal, but striving for superiority, locally, operationally, and strategically, is of great importance. Major Matt Green opens his monograph by addressing the same issue; the new Joint and Army emphasis on ISR is being driven by these concepts and the increased speed of dissemination to users fueled by networked tactical platforms.[17] "See first, understand first, act first" is pushing the US Army to improve its reconnaissance capability, and information converted into knowledge and intelligence is currently the limiting factor.[18] By the time these theoretical ideas reach the Sergeant First Class at Fort Knox charged with writing new scout platoon doctrine, the need for change is simply attributed to a different potential environment (primarily urban), new technology, and a very different threat. These changing variables are difficult to argue with, and are adequate to drive analysis at the tactical level where concepts must coexist in the world of the possible.[19] There is institutional emphasis on making contact with opponents beyond direct fire range, allowing maneuver out of contact, and the realization that scouts can no longer worry just about the enemy and terrain, but must also consider the infrastructure and civil society around them.[20] As difficult reconnaissance tasks multiply, trinity organizations and platforms no longer seem adequate for the job. It seems that reconnaissance is getting too hard for the generalist; it requires specialization.

---

[17] Major Matt Green, "Operational Reconnaissance: The Missing Link? (Leavenworth, KS: School of Advanced Military Studies, 2003), 1-3.
[18] Ibid, 3.
[19] SFC Frank R. Belonus, "The Evolution of Reconnaissance in the 21st Century" *Armor*, March-April 2002, 21.
[20] Ibid, 22.

The Western Cavalry Tradition

Like most complex problems, debate over change comes with emotional baggage. Proponents are personally loyal to their vision of cavalry; history "supports" one answer or another; doctrine is trotted out for attack or justification of a particular school. Cavalry has occupied a special place in Western thought since the Middle Ages, and has gained a reputation for stubbornness and elitism, at least in Twentieth Century Western Europe. Few US armor or cavalry officers can discuss the issue without emotion and a sense of history creeping into the argument. It almost seems that one cannot determine the future of cavalry without agreeing where it has been.

The golden age of horse cavalry was probably reached between the wars of Frederick the Great and the Napoleonic Wars, where the various types and traditional roles of the cavalry were solidified. Cavalry's great advantage was tactical, and to a lesser extent operational, speed and mobility; the downside was expense, training time, and logistical support nightmares. Cavalry performed on two stages: the battlefield, and in the *petit guerre*, or little war, which implied an operational context. Three versions, or types, of cavalry forces developed as a result: heavy, medium, and light. Heavy battle cavalry, with residual body armor, large horses, and straight, thrusting swords ruled the battlefield. These forces generated physical and moral shock, and could be employed in the right circumstances to overwhelm shaken infantry, exposed artillery, and lighter horse, or to restore the balance of a shaken force by buying them a respite from direct enemy pressure. Napoleon loved to employ his heavy *cuirassiers* at the decisive point of the battle to secure victory and then initiate the operational pursuit.[21] Medium and light cavalry had roles on the battlefield where they performed much like heavy cavalry, but it was in the *petit guerre*, and operational level of war where they truly excelled. Medium cavalry could dismount and fight as infantry when necessary (dragoons), but focused on mounted combat, economy of

9

force missions, and rear area security. Light cavalry lived for reconnaissance, counter-reconnaissance, and pursuit after victory. Reconnaissance centered on terrain (primarily movement routes for divisions and corps), movements of the enemy force, and conditions in the neutral countryside (status of supplies in cities, attitudes of the population, etc). At the tactical level they provided advanced guards to their parent corps, buying the main body time to deploy and attack the enemy, or escape an unanticipated encounter. Cavalry enjoyed a clear distinction between themselves and the other two combat branches, and clear division of responsibility within its three types.

The picture began to change with the advent of the modern rifle, telegraph, and railroad; each invention intruded into the sacred realm or advantage of the cavalry. Railroads brought superior (or at least equal) operational mobility to the infantry, which also required fewer cars to move its men and supplies. Telegraphs allowed faster dissemination of orders and information, providing a better understanding of the friendly and enemy situation to commanders. Finally, rifles made the battlefield a very dangerous place for battle cavalry, and virtually assured the immunity of infantry from successful mounted cavalry attack. During the American Civil War and Wars of German Unification, this development became obvious to all military professionals, and cavalry was forced to adapt or die. Heavy battle cavalry faded until its elimination after 1870. In Europe, cavalry began to focus on reconnaissance, counter reconnaissance, and shaping the operational environment. Cavalry gathered information, denied the enemy information, and bought infantry corps time to deploy and maneuver before contact. It also allowed defeated infantry to break contact and delayed pursuit until they had escaped. Operational and strategic raids were envisioned, and cavalry regiments and divisions increasingly became combined arms forces in their own right, with organic artillery, machine guns, and dismounted fighting capability. In America, cavalry slowly returned to the dragoon or mounted rifleman concept,

---

[21] Louis B. Rago, III., Cavalry Transformation: Are We Shooting the Horse Too Soon? (Leavenworth, KS: School of Advanced Military Studies, 2002), 11-12.

with raids the favored method of employment. Cavalry still conducted reconnaissance and counter reconnaissance, but by 1864 raids and dismounted battle had gained primacy.

World War One saw a low point in cavalry relevance to Western warfare. The horsed warrior still played a part in the East and the Middle East throughout the war, but by 1915 cavalry was virtually gone from the trench battlefields in France and the Low Countries. The Germans and French dismounted much of their cavalry, forming them into elite reconnaissance and assault battalions within their infantry divisions. The British maintained a cavalry corps on the Western Front, but it played almost no part in the war until 1918, and then performed primarily as a mounted infantry force. Airplanes, balloons, dismounted patrols, and signals monitoring replaced the tactical and operational reconnaissance function of the light cavalry. But the same motor that empowered aerial reconnaissance and tanks would restore relevance to the cavalry force. By 1918 most belligerents had fielded cavalry light armored cars, and mechanization offered a cavalry a future.

Unfortunately for European cavalrymen, motorization was a resource available to all branches, forever diluting the decisive difference between the cavalry trooper and the infantryman: tactical mobility. Infantry rode in trucks supported by tanks, artillery was towed and then pushed into battle by trucks and tracks, airplanes flew overhead attacking ground targets and providing information to commanders. Every branch contained some amount of motorization and mechanization, some element that could move as fast or even faster than cavalry, even at the tactical level. All that was left for distinction was hundreds of years of tradition, an operational context, and their historical monopolies; special roles that did not make sense anymore as new branches were invented and the old branches achieved mobile parity. As a result, cavalrymen in each Western country would struggle to define and defend their unique contribution to the military capability of their nation. In general, infantry or general-purpose tanks took over the role of heavy battle cavalry. Motorized or mechanized infantry cut into the medium cavalry's dragoon and mounted rifleman concept, providing an alternative economy of force capability.

Reconnaissance, counter reconnaissance, delay and pursuit still seemed fair game, but were at risk of usurpation or watering down by armor, anti-tank or tank destroyer, aviation, and motorized infantry formations. This struggle would play out in different ways within each nation's military during the course of World War Two.

CHAPTER TWO

AN ALTERNATIVE VISION: GERMAN RECONNAISSANCE IN WORLD WAR TWO

German Doctrine and Contemporary Theory

How someone else attempted to solve a similar problem can often provide great insight to our own challenges. The German solution to reconnaissance and cavalry before World War II is valuable for its thoroughness, accessibility, and significantly different approach. German doctrine on the subject was clearly articulated in the 1933 version of *Truppenfuhrung* and elaborated on within a motorized context by Heinz Guderian in *Achtung Panzer* in 1937. *Truppenfuhrung* contained two chapters on the subject; one devoted to reconnaissance, the other to security. Conceptually, the German vision of reconnaissance parallels the new direction of US cavalry, and provides living proof that cavalry can take a form other than a trinity force. Although envisioned as a reconnaissance focused organization, German recon units increasingly found themselves employed as specialized combat assets, offering insight in how organizational evolution can thwart institutional intent.

The first statement in the reconnaissance chapter of *Truppenfuhrung* identifies the purpose of, and different levels involved in, reconnaissance. The purpose of reconnaissance is to provide information necessary for commanders to make decisions, and consists of combat/battle, tactical, and operational/strategic levels of effort.[22] Guderian further clarifies the purpose of reconnaissance: it drives command decisions as to where to direct the main effort of an attack or the most effective location to direct a counter-attack against the enemy, a concept that has subsequently been defined as recon pull.[23] Reconnaissance was the responsibility of all arms and

---

[22] OKH, *Truppenfuhrung,* translated and published by the CGSC Press in 1936, translator unknown (Berlin: E.S. Mittler, 1933), paragraph 120. Guderian refers to battle, tactical, and operational reconnaissance in *Achtung Panzer*.

[23] Heinz Guderian, 181. William S. Lind. "The Theory and Practice of Maneuver Warfare". In *Maneuver Warfare, An Anthology*. ed. Richard D. Hooker, Jr. (California: Presidio Press, 1994), 10.

units, but main efforts would be weighted with additional reconnaissance assets, and commanders were cautioned to always maintain a reconnaissance reserve.[24] Reconnaissance could be terrain or route focused as well as enemy focused, or even directed to maintain awareness of friendly developments.[25]

Different levels of reconnaissance required different capabilities and focus; Guderian explicitly points this out. Operational recon demands speed, range (operating radius), protection, firepower, and effective, long-range communications means; he recommends wheeled vehicles as the logical platform for these missions.[26] Tactical recon demanded tracked vehicles and motorcycles working hand in hand, and combat (or battle) reconnaissance demanded tracked fighting vehicles alone.[27] Battle reconnaissance was recognized as the most difficult of the three, due to the requirement to fight for the information, and the short shelf life of that intelligence; reports in this realm were only of importance if they could be employed immediately.[28] Battle reconnaissance units required reinforcement to create the breakthrough into the enemy rear, and if they failed, main body elements would have to assume their mission; this entire process required time and patience.[29]

Aerial support was essential in tactical and operational reconnaissance, but combat reconnaissance was solely the realm of ground forces based on the necessity for rapid dissemination of intelligence, something air photo flights could not accomplish at the time.[30] This relationship was further defined in German doctrine as a combined effort to maximize the strengths and minimize the weaknesses of the two mediums. A key role of aerial reconnaissance was to focus ground effort; ground forces confirmed enemy capabilities and composition, enemy

---

[24] *Truppenfuhrung*, para 123.
[25] *Truppenfuhrung*, 181.
[26] Heinz Guderian, 163.
[27] Heinz Guderian, 164.
[28] *Truppenfuhrung*, para 141.
[29] *Truppenfuhrung*, para 178, 179.
[30] Heinz Guderian, 192.

intentions, could overcome foul weather, and could overcome aerial concealment.[31] Aerial effort

was uniquely capable of updating and replacing map information, moving where ground elements

could not reach or penetrate (either due to depth, rough terrain, or effective enemy counter-

reconnaissance efforts), and to initially survey an area for further division of effort.[32] The

strengths of aerial recon were listed as rapidity and timeliness (in an operational sense) and

determining route trafficability, while weaknesses were pointed out: bridge weight classification

(particularly after the structure had suffered combat damage); depth, velocity, and

bank/streambed composition of rivers; and detecting demolitions charges and buried minefields.[33]

Clearly in keeping with German military tradition, Guderian envisioned frequent

attachment of specialized units to the reconnaissance elements for specific mission requirements.

According to German doctrine, each reconnaissance battalion must contain a mix of heavy and

light companies to accomplish the range of intelligence missions, and be ready to fight (with

attachments) to overcome their opposites attempting to accomplish the same tasks and prevent

effective observation of their parent units.[34] Combat was envisioned, but primarily against fellow

reconnaissance elements at the tactical and operational/strategic level.

The need to fight in order to penetrate security forces and gain relevant combat

information is clear in German doctrine and personal reflections. *Truppenfuhrung* describes the

life cycle of reconnaissance effort as a struggle for intelligence superiority, with units massing,

penetrating the enemy security screen, and dispersing to gather information.[35] The US handbook

on the German Army in World War II cautioned that German reconnaissance patrols:

> [are] reinforced with self-propelled guns and occasionally with tanks.
> Engineers and motorcyclists are often attached to the patrol to deal with

---

[31] *Truppenfuhrung*, para 131.
[32] "German Aerial Reconnaissance." In *Modern Reconnaissance*, ed. Col. Edwin M. Sumner (Harrisburg, PA: Military Service Publishing Co., 1944), 217. The author and his source are not identified in this collection of articles from the US Cavalry Journal during World War II, but it is obvious from the text that he is translating a German manual or pamphlet on the subject.
[33] Ibid, 218-219.
[34] Heinz Guderian, 164.
[35] *Truppenfuhrung*, para 124.

roadblocks and demolitions….The Germans stress aggressiveness, attempt to obtain superiority in the area to be covered, and strive for continuous observation of the enemy. They believe in employing recon units in force as a rule. They expect and are prepared to fight to obtain the desired information. Often they assign supplementary tasks to their recon units, such as sabotage behind enemy lines, harassment, and counter-recon.[36]

This aggressiveness was seconded by Col John Lovell in an article for the US Cavalry Journal, "German reconnaissance units are very aggressive…[they are] often reinforced and will usually attack as soon as contact is established. If the opposition is too strong, they will utilize their mobility-withdraw and go around the position."[37]

Guderian lists the most likely missions for motorized reconnaissance battalions: attack against enemy reconnaissance forces, pursuit of a withdrawing enemy, cover a friendly retreat, screen friendly actions, and to secure vulnerable flanks and rear areas.[38] This list is completely in accordance with traditional European thought on the use of light cavalry since the 1600s. Depth of German understanding of the mechanics of these missions is obvious to anyone scanning the second half of the Reconnaissance chapter of *Truppenfuhrung*, and these paragraphs carry relevant lessons for cavalry leaders today: route reconnaissance implies securing key choke points, reconnaissance hand over between echelons is critical, the relationship between mounted and dismounted recon elements, the necessity to maintain contact with the enemy once established, and the intelligence value of field artillery observers.[39] An effective intelligence picture requires a blending of all gathering resources, to include air, signal intercepts, foreign press analysis, telephone monitoring, prisoner interrogation, captured documents, and ground and aerial reconnaissance.[40]

For those who have studied the subject even superficially, there is a clear linkage between friendly force oriented security measures and enemy force or terrain oriented

---

[36] *Handbook on German Military Forces*. War Department Technical Manual TM-E 30-451. (Washington, D.C.: United States Government Printing Office, 1945), IV-2 to 3.
[37] Col. John R. Lovell, "German Reconnaissance", In *Modern Reconnaissance*, 19.
[38] Heinz Guderian, 165.
[39] Truppenfuhrung, para 157, 162, 169, 171, 183.

reconnaissance effort. The two often blend, and measures taken to ensure success with one-facet often pay dividends in the other. German military thought understood this complex relationship, but also the subtle differences between the two.[41] Despite the aggressive nature of German reconnaissance operations, doctrine warned to engage in combat only to drive off hostile recon forces, that recon battalions required reinforcement to fulfill the security role, and that recon should not suffer at the expense of security.[42] Guderian points out that the mobile anti-tank battery or battalion is the logical security force for a mobile division, and the existence of such a unit would help relieve reconnaissance elements of security oriented taskings.[43] This is a key concept, one that demonstrates a practical understanding of how units in combat work. Security is a very real requirement, and demands combat forces to that end. Due to the very real and logical linkage between reconnaissance and security, there was a natural tendency to assign recon forces to a secondary mission at the expense of their primary mission. The most logical way to solve the problem was to provide division commanders a second formation optimized for the security mission. As we shall see below, even this step could not completely solve the focus problem, either in the German or US Army.

The Security chapter of *Truppenfuhrung* helped to clarify the German vision of the relationship between recon forces and this task. Local security was primarily the internal responsibility of each unit, and would be accomplished with the establishment of outposts from the main body, typically composed of reinforced infantry forces.[44] When moving, divisions were to rely on their recon battalions for early warning of the enemy, then advanced, flank, and rear security/guard formations to prevent ground attack on the division while in march formation.[45]

---

[40] Truppenfuhrung, para 184-189.
[41] *Truppenfuhrung*, para 125.
[42] *Truppenfuhrung*, para 155.
[43] Heinz Guderian, 166.
[44] *Truppenfuhrung*, para 215.
[45] *Truppenfuhrung*, para 243.

Screening missions (counter-reconnaissance security for the division) were very much the responsibility of the recon battalion, but only against enemy scout elements.

Truppenfuhrung includes a chapter on the role of independent cavalry divisions and corps that distinguished the role of light cavalry (recon forces) and heavy cavalry (battle cavalry, and eventually panzer forces).[46] German heavy cavalry made a clean break from horse mounted to tank mounted battle cavalry, with the remainder of the branch clearly assigned the division reconnaissance mission. A large portion of the German cavalry branch merged with the Inspectorate of Motorized Troops when two of the three cavalry divisions were converted into panzer divisions in 1935, and the Panzer branch formed. All that remained were the reconnaissance battalions and regiments for the infantry and light divisions, and the 1st Cavalry Division, which transitioned into a panzer division in 1941-2.

Organization of German Reconnaissance Elements

The Germans were not seduced by the apparent logic of the mixed horse mounted and motorized reconnaissance unit, or rather, the appeal of this idea did not survive the harsh light of German training exercises. Such a unit, with the enthusiastic support of no less a personage than General von Seeckt himself, participated in the 1932 field exercises, where it was demonstrated to the cavalry leaders of the time that horses could not keep up with the motorized elements and lowered the mobility of the entire organization.[47] After this point the cavalry enthusiastically got behind motorization and modernization, and smoothly transitioned to seven armored reconnaissance battalions in 1933 and three panzer divisions in 1935.

The German solution for distribution of reconnaissance forces was to allot a battalion per division, at least before the lean years of 1944 and 1945.[48] Reconnaissance at the infantry

---

[46] *Truppenfuhrung*, para 699-724.
[47] James S. Corum, "A Comprehensive Approach to Change: Reform in the German Army in the Interwar Period." In *The Challenge of Change: Military Institutions and New Realities, 1918-41*. ed. Harold R. Winton and David R. Mets. Lincoln: University of Nebraska Press, 2000.
[48] *Handbook on German Military Forces*, II-8.

regiment level was the responsibility of an organic mounted platoon (horse or bicycle); battalions were to conduct patrols with regular infantry units.[49] Infantry divisions initially had a three-company configuration: horse cavalry, bicycle, and heavy weapons.[50] This gave way to the Fusilier battalion in late 1943, with three rifle companies (one equipped with bicycles) and a heavy weapons company, and was more oriented as the division reserve rather than primarily a recon force.[51] Panzer divisions contained an armored reconnaissance battalion of four combat companies, with an armored car, armored recon, light armored recon, and heavy weapons companies, in addition to the headquarters and support companies.[52] In 1943, the mobile battalion (*Schnelle Abteilung*) was created in German infantry divisions by combining the reconnaissance and anti-tank battalions, but with the introduction of the Fusilier table of organization, most divisions reverted to two separate units.[53] There are repeated references to this standard task organization (and often including the motorcycle battalion) in operational histories and personal accounts.

Colonel Hans von Luck entered the reconnaissance troops in 1933 and served with reconnaissance units until 1942. His experiences offer unique insight into the organization, training, and equipment of German light cavalry forces. As an officer cadet von Luck served in a horse mounted regiment, and expressed the general displeasure of the unit when ordered to trade in their mounts for motorized vehicles.[54] After finishing his officer training at the infantry school, von Luck was posted to a motorized battalion in 1933. That same year all seven motorized

---

[49] Ibid, II-34, II-35.

[50] Ibid, II-83.

[51] Ibid, II-83. The battalion was authorized approximately 700 men, a small number of vehicles (eight trucks and five motorcycles, various wagons and trailers, and 165 horses; see Figure 140 on II-84. It also included 43 light machine guns, twelve heavy machine guns, six 81mm mortars, and four 120mm mortars.

[52] Ibid, II-84. Total personnel strength was approximately 950 men, with 35 four-wheel or eight-wheel scout cars armed with 20mm cannon, ten 81mm mortars, thirteen 75mm SP assault guns, 199 motorized vehicles (including 124 halftracks), and 22 motorcycles. Various combat vehicles supported reconnaissance efforts, to include the PzKfw IIL Lynx light tank with a 20mm gun, eight wheel recon cars mounting either a 75mm assault gun or a 50mm anti-tank gun, and 20mm gun equipped half-tracks. See VII-77, VII-85-88.

[53] Ibid, II-83.

[54] Col. Hans von Luck, *Panzer Commander* (New York: Dell Publishing, 1989), 13.

reconnaissance battalions (one per standing infantry division) were converted into armored reconnaissance battalions. In 1939 von Luck was transferred to the 2nd Light Division, which included the 7th Armored Reconnaissance Regiment with two armored reconnaissance battalions.[55] His company was equipped with a mixture of four wheeled, 20mm armed scout cars and motorcycles spread across three recon platoons and a heavy weapon platoon. After Poland, Luck's battalion was designated the 37th Recon Battalion of the 7th Panzer division and equipped with the new six wheeled scout car. Von Luck's memoirs repeatedly refer to reinforcement by, and attachment of, various additional combat support elements, which typically included anti-tank, anti-aircraft, artillery, and motorcycle infantry units.

The Germans employed the following tactics at the battalion level and below. "Armored car patrols normally are composed of three armored recon cars…If enemy forces are met, action is avoided unless the force is so weak that it can be destroyed without diverting the patrol from its main tasks. While scouting a woods, a favorite German ruse is to drive the leading car towards it edge, halt briefly to observe, and then drive off rapidly, hoping to draw fire that will disclose the enemy positions. Hans von Luck pointed out that in Poland the company standard response upon making contact with enemy forces was to launch an immediate attack and to attempt to flank the opposition.[56] German reconnaissance doctrine, organization, and training were well prepared to face the challenges of modern war in 1939.

Wartime Performance.

A German Armored Reconnaissance Battalion Commander

Colonel Hans von Luck's wartime experiences offer perspective on the difference between concepts and reality. Serving as a company and then battalion commander in the 37th

---

[55] Ibid, 27. The four Light Divisions were judged to be an inefficient use of resources in Poland in 1939 and converted to panzer divisions in time for the 1940 campaign in France. They were unique in being authorized more than one reconnaissance battalion per division.
[56] Hans von Luck, 28-29.

Armored Reconnaissance Battalion, von Luck formed the spearhead for Rommel's advances in France in 1940. The reconnaissance battalion formed the division advanced guard for the movement through the Ardennes, and upon reaching the Meuse, stopped and assisted a forward passage of lines by the following infantry battalions.[57] As the infantry battalions attempted to conduct an assault crossing of the Meuse, the recon battalion provided supporting direct fire from the eastern bank. Once the breakout had been accomplished west of Dinant, the recon battalion formed the advanced guard and southern flank security element for the 7th Panzer Division, necessitating a number of operations to seize standing bridges and to conduct assault river crossings.[58] At one point the battalion was personally directed by Rommel to advance 30 kilometers into enemy territory in order to seize a critical hill and road intersection. Von Luck pointed out that he would require significant reinforcement to penetrate the enemy screen, reach, and hold this objective, so Rommel reinforced the battalion with tanks, artillery, and 88mm cannon. In the last operation of the campaign, von Luck was detached from the division, reinforced with a 88mm battery, and ordered to invest Fecamp in Brittany to protect the division flank as it continued to drive south and west. Von Luck exceeded his orders, bombarded the town, drove off two British destroyers, and accepted the surrender of a French infantry regiment.[59] In one day of the Normandy portion of the campaign, the reconnaissance battalion advanced 350 kms into enemy territory.

Col. von Luck's service in the Russian Campaign is equally illuminating. Still in command of the 37th ARBn, von Luck was often ordered to penetrate the enemy line and circle to their rear, establishing defensive strong points along the key road intersections to prevent Soviet escape from the forming pockets.[60] After the German capture of Smolensk, the division motorcycle battalion was placed under von Luck's command, and his regimental battle group was

---

[57] Hans von Luck, 37.
[58] Ibid, 39, 40.
[59] Ibid, 44-45.
[60] Ibid, 71.

ordered to shield the division's open northern flank. This combat group was also used to range

ahead of the division, securing key bridges and road intersections to ease forward movement.[61]

Often it seems that the aggressive handling of such a battle group well in advance of the division

main body was sufficient to panic Soviet defenders out of excellent positions. As the general

German retreat began in December 1941, von Luck was given command of the division rear

guard, built around the nucleus of his reconnaissance battalion, and successfully covered the

retreat of 7th Panzer Division from Klin into its winter defensive positions.[62]

Hans von Luck's final service as a reconnaissance commander came in North Africa in

1941 and 1942. His initial command was the 3rd Armored Reconnaissance Battalion, tasked by

Rommel to protect the open, southern flank from British threats to the rear supply line of the

Panzer Armee Afrika. In executing this task von Luck dueled with the British Royal Dragoons,

11th Hussars, and the Long Range Desert Group for months.[63] During the second German attempt

to seize Tobruk, Luck's battalion was reinforced with anti-tank guns and ordered to block the

coastal road running east out of the city from relief forces. This resulted in a sharp fight with

British Grants that was held for a long enough period for the *Deutsch Afrika Korps* to arrive and

attack into the British flank.[64] At El Alamein, 3rd ARBn screened the gap vacated by the 21st

Panzer Division along the southern portion of the army positions, allowing that division to

counter-attack Montgomery's developing penetration along the coast. Ordered to support the

Italian XX Corps folding under British attacks, von Luck expressed frustration with the

inadequacy of the 20mm cannon of the scout car to provide much assistance.[65] After the German-

Italian defense collapsed, von Luck was given the remnants of three reconnaissance battalions

(from 15th and 21st Panzer, and 90th Light divisions), and ordered to cover the army's southern

flank during the retreat, preventing any deep British enveloping force from cutting off the escape

---

[61] Ibid, 77.
[62] Ibid, 80-81.
[63] Ibid, 95, 97.
[64] Ibid, 99.

route to the west.[66] During this phase of the operation von Luck was assigned a light

reconnaissance aircraft, which he or the group adjutant would take up once or twice a day for

quick flyovers of the great desert expanse to the south; the Italian *Nizza* Recon Battalion was also

added to his command during the later half of the Axis retreat.[67] Von Luck points out that it was

necessary to periodically conduct sweeps against enemy patrols in order to capture prisoners, one

of the few ways to determine future enemy intentions and the status of intangibles (level of

supplies, morale, and training) rather than just the composition and location of various units.[68]

Von Luck's last mission in the North African theater was to use his reconstituted 3rd

Reconnaissance Battalion as a nucleus for a forward detachment of the 21st Panzer Division in the

battles around Kasserine Pass.[69] Although successful in the short run, this operation resulted in

significant casualties, used up the combat power of the battalion, and marked von Luck's last

mission as a reconnaissance element commander. From the beginning senior German

commanders had disregarded doctrine and employed reconnaissance forces much more

aggressively than intended and resourced. Why this happened will be explored in the conclusion

of this chapter.

The 116th Armored Reconnaissance Battalion

Three examples from the 116th Panzer Division in 1944 offer reinforcement to the picture

painted by COL von Luck.. When the division was first committed to combat in the Normandy

area in late July 1944, the reconnaissance battalion was sent forward as one of the first elements

from the division to reach the assembly area. As soon as the battalion was combat effective, it

was ordered to conduct a preliminary attack to seize a key hill in the area that allowed superior

observation of local operations. This hill was defended by elements of CCA of the US 2nd

---

[65] Ibid, 117.
[66] Ibid, 119.
[67] Ibid, 121.
[68] Ibid, 123.
[69] Ibid, 141-142.

Armored Division and a regiment of the 29th Infantry Division. Initial probing attacks confirmed the American presence, and over the next two days the reconnaissance battalion fought itself into combat exhaustion attempting to drive them off the hill.[70] German doctrine supported attacks against enemy reconnaissance elements, but against prepared positions held by infantry and tanks supported by artillery, the battalion did not have sufficient combat power to succeed.

On 4 November 1944 the division was committed to the Huertgen Forest area to contain an attack by the US 28th Infantry Division. 116th Reconnaissance Battalion was ordered to seize the Mestrenger Mill in the Kall Valley to interdict the enemy advance and to cut off units established beyond the Kall River in Kommerscheidt and Schmidt.[71] The US Main Supply Route (MSR) in the region was being defended and improved by a US engineer group attached to the 28th ID. Implied tasks included finding or creating a gap between two US infantry regiments, reaching the rear of the forces east of the Kall, and interdicting traffic along that trail. This mission could only be described as a reconnaissance mission because it included discovering exactly where the American flanks were positioned. During this operation the reconnaissance battalion cooperated with an infantry battalion, engineers, anti-tank units, and the elite guard company of the division in sustained combat operations. The battalion cut the Kall Trail intermittently for two days, managed to lay mines on the north side of the river, and was eventually driven back east up the Kall Valley by an American armored attack on 6 November.[72] Again, tactical employment of the battalion differed radically from pre-war thought.

The final example from the 116th Panzer Division comes from its employment during the December 1944 Ardennes Offensive. The Division was ordered to surrender forces to create a forward detachment for the 58th Panzer Corps consisting of the recon battalion, an assault gun battery, a combat engineer company, a light artillery battalion, an armored rocket launcher

---

[70] Heinz Gunther Guderian, *From Normandy to the Ruhr: With the 116th Panzer Division in World War II* (Bedford, PA: Aberjona Press, 2001), 57, 58.
[71] Heinz Gunther Guderian, 241.
[72] Ibid, 246, 249.

battery, and a light anti-aircraft battery.[73] After a 116th Division infantry attack had seized the

Durler-Heinerscheid road intersection, this force was to penetrate American lines and rush to

capture a Meuse River crossing to be exploited by the Corps and 5th Panzer Army. All three of

these late war examples suggest a significant departure from pre-war reconnaissance and security

doctrine that will be further examined below.

Conclusions from the German Perspective of Reconnaissance.

The Germans started the war with well thought out and articulated doctrine, but almost

immediately disregarded the provisions against general combat and the separation between

reconnaissance and security. Armored reconnaissance battalions enjoyed excellent mobility,

firepower, and protection relative to all opponents short of tank battalions. Cavalry leaders came

from a combat arms background, and were considered maneuver commanders. There never

seemed to be enough combat battalions to go around, and division and corps commanders

logically formed additional groupings around the shell of a robust combat reconnaissance

element. Reinforced or ad hoc organizations were formed to serve as the division reserve,

advanced guard, or security element, not just fight for information. The Germans lavishly

resourced their reconnaissance elements to fight for intelligence, but in the process created an

overwhelming temptation to employ these maneuver units in a non-doctrinal manner. One can

conclude from the German experience that the reconnaissance echelon should only be resourced

with the absolute minimum combat power necessary to penetrate enemy security screens and

nothing more. If addition firepower is needed, it can be provided through short-term attachment

of traditional maneuver assets. Additionally, a robust alternative security formation, either a

specialized unit or a generic maneuver unit tasked and trained for that purpose, must exist to free

reconnaissance to focus on its primary mission. Finally, all leaders associated with the

employment of reconnaissance forces must be trained and disciplined to husband these resources

---

[73] Ibid, 520.

to maximize their unique contribution to operations rather than treating them like another maneuver headquarters to form battle groups around. But in desperate times, leaders will employ all necessary combat power to win, and shortages in generic maneuver units will be made up by employing specialized units in secondary roles.

CHAPTER THREE

THE MODERN US EXPERIENCE

World War II

The US cavalry experience before and during World War Two is remarkably similar to that of the Germans. Envisioned before the war as light, reconnaissance oriented forces, US cavalry squadrons and groups evolved into powerful operational economy of force organizations willing to engage in any mission against virtually any opponent. There was some differentiation between armored division squadrons and corps groups, but for the most part cavalry was treated as a pool of mobile, robust independent medium task forces and brigade combat teams to cover exposed ground. Mobile defense and attack missions dominated their wartime service, and drove US cavalry organization, equipment, and doctrine after the war.

In order to properly understand the modern US cavalry force, one must understand the circumstances surrounding the birth of the US Armored Force in the early 1940s. Unlike examples from Europe, America's cavalry branch could not efficiently evolve into motorized versions of battle and reconnaissance cavalry. Infantry branch owned tank development while Cavalry branch had the lead on mechanization, and a pivotal Chief of Cavalry, General Herr, stood in the way of modernization at precisely the wrong moment. The picture was further clouded by developments within Artillery Branch to motorize itself and field self-propelled guns, and the late introduction of anti-tank units to the US Army. The result was a Cavalry Branch further and further behind the times, scrambling to become relevant in time to contribute to victory in WW II.

In 1933 the US Cavalry branch organized a provisional motorized cavalry regiment that emphasized a robust, combined arms organization capable of reconnaissance, security, and economy of force missions employing mounted troopers, wheeled elements, and combat cars

(essentially light tanks, but called "cars" to avoid infighting with Infantry branch).[74] The scout element of this regiment was a recon troop with three platoons of five armored cars and twenty-five men each. The mission envisioned for this troop was very specific, and closely linked to the overall concept of the mechanized regiment. The recon troop would operate dispersed, either as independent platoons or even sections, with dismounted operations and speed key to avoiding combat; its purpose was to direct the more traditional combat power of the regiment. This MTOE and employment concept was tested and validated at the June 1936 Kentucky and Michigan maneuvers against leg infantry and horse mounted cavalry, and the 7th Cavalry Brigade was deemed a major success.[75] The doctrinal result was the 1936 version of FM 2-10, Mechanized Cavalry, which codified a reconnaissance troop focusing on stealth, dispersion, and dismounted patrols, all operating within the framework of a powerful mechanized brigade providing combat power. To better accomplish this mission, the troop was expanded to four platoons with four scout cars each, and five motorcycles in the troop headquarters.

This workable solution began to experience major problems with the arrival of MG Herr as the new Cavalry chief in 1938. MG Herr was a reactionary who sincerely believed that the Army was making a major mistake replacing horses with motors. Significant progress in the form of half-mechanized, half-mounted cavalry regiments was suspended and Herr insisted that no further mounted units would be converted to mechanized equipment. As far as Herr was concerned, if the Army wanted new mechanized forces, it would have to stand them up from scratch. In July 1940 the provisional Armored Force was created at Fort Knox under the direction of General Chaffee in order to do just that, and General Herr was only too happy to transfer all his motorized units to this new branch, pulling along most of the young, dynamic cavalry innovators in the process.[76] Cavalry branch was left with oversight of mounted

---

[74] DiMarco, "US Army's Mechanized Cavalry Doctrine in WW II" (Fort Leavenworth: CSI Press, 199), 8-9.
[75] DiMarco, 10-12.
[76] DiMarco, 16.

regiments, two cavalry divisions (both of which would soon be deactivated or transferred to other commands), and the motorized scout platoons, troops, and squadrons assigned to infantry divisions. The only doctrine available to these motorized elements was the 1936 version of FM 2-10, which described scout operations *within the context of a mechanized brigade*, not as general all-purpose forces. Without the combat power of the mechanized regiments (an eventuality not perceived by the authors), this doctrine made little sense.

This doctrinal vacuum was exacerbated by further change within Cavalry branch, and the accelerated preparation for US involvement in the war. After the August 1940 maneuvers, General McNair listed reconnaissance as a weakness across the Army, and he worried about improper employment of horse cavalry and lack of lateral contact between adjacent units.[77] He felt there were too many layers of reconnaissance units, with the infantry regiment's I&R platoon adequate for the infantry divisions, but refused to insist on a change.[78] The eventual decision to include a cavalry troop in each infantry division and a battalion in the armored division was linked to a correlation between weapons range and mobility of the cavalry unit in relation to the average frontage and average rate of advance of the parent unit. The intent was to ensure the cavalry was not constrained by too small a parent unit footprint.[79] In late 1941, a new FM 2-10 was published to address some of these changes and lessons learned as American raced to prepare for war. Recon troops would retain their stealth focus, but now the exploiting combat power would be provided by infantry or horse mounted cavalry. Scouts were reassured that their core tasks remained reconnaissance and limited (self-protection) security missions. Four motorcycles were assigned to each scout platoon (now with four cars and four motorcycles) and extensive manual pages devoted to recon, patrolling, and scouting techniques.[80] Around the same time, US Army Ground Forces Command (AGF) notified Cavalry branch that all mounted regiments

---

[77] Kent Roberts Greenfield, Robert R. Palmer, and Bell I. Wiley, *Organization of Ground Combat Troops* (Washington, D.C.: Department of the Army, 1947), 33.
[78] Ibid, 308.
[79] Ibid, 292.

would be disbanded and a new Cavalry Recon Squadron (CRS) organization created to take their place. Again combat oriented forces were to be replaced with recon focused elements; within the context of contemporary cavalry doctrine, only infantry would be available to exploit the information these units collected. It was also around this time that the chief of the Armored Force suggested he should gain control of cavalry and tank destroyer branches.[81] The idea was rejected at the time, but by November 1944 the officer candidate schools for all three branches were merged at Fort Knox, signifying a blurring of the distinction between the three arms that occurred as a result of combat.[82]

But another dilemma resulted from the table of organization for the new CRS; it was a robust and highly capable unit with inappropriately tentative doctrine guiding its employment. The Army Ground Forces command had taken over formal responsibility for tables of organization from the Cavalry branch in March 1942 and the new philosophy was apparent.[83] The CRS included three recon troops, an anti-tank platoon, and a light tank company, and was equipped with M3 scout cars (armed with a 50 and 30 cal machine gun), motorcycles (soon replaced with Jeeps), and M3 light tanks (37mm cannon).[84] The unit was mobile, fast, and contained lots of firepower, at the expense of protection. This was not a small, stealth recon troop attached to a mechanized brigade to focus its maneuver, but rather a powerful combat force in its own right. Unfortunately, the doctrine just published could not integrate these concepts in time for the first trials by combat in North Africa. Resolution of these problems was complicated by the frantic pace necessary to convert mounted regiments into CRSs, field and train operators on new equipment, and similar duplication of effort in the armored reconnaissance battalions (ARB)

---

[80] DiMarco, 20-22.
[81] *Organization of Ground Combat Troops*, 402-402.
[82] *The Procurement and Training of Ground Combat Troops*, 145.
[83] Kent Roberts Greenfield, Robert R. Palmer, and Bell I. Wiley, *Organization of Ground Combat Troops* (Washington, D.C.: Department of the Army, 1947), 268.
[84] DiMarco, 28.

in the new armored divisions. Time for higher-level collective training and rewriting doctrine was short.

Before commitment to combat in North Africa, the organization and equipment of cavalry forces underwent further refinement. Scout platoons were standardized at four jeeps, four M3 scout cars, and two 60mm mortars (crews and tubes rode on their own jeeps). Reconnaissance battalions in the armored divisions had an additional recon troop (four rather than three) and a 75mm assault gun per platoon.[85] FM 2-15, Employment of Cavalry, and FM 100-17, Field Regulations for Larger Units, both published in 1941, continued to caution against employing cavalry in the security role, much less combat missions. Doctrine ignored the increased combat capacity of the new CRS/ARB, still providing guidance based on a small, light troop within a mechanized brigade, and overlooked the lurking collective memory among senior leaders of what cavalry accomplishes: reconnaissance, security, and economy of force missions. Combat operations would force a reassessment of the correct employment techniques for the significant fighting power represented by these new cavalry forces, which would feature an intellectual struggle between the reconnaissance and trinity school.

Early combat operations in North Africa, combined with reflections from commanders and AGF assessment teams in theater, framed the further development of US cavalry during the war. Operations by the 81st ARB, 1st Armored Division, and the 91st CRS, attached to various divisions, provided the primary case studies for contemporary analysis and conclusions. In January 1943 the 81st ARB attempted to infiltrate Axis lines around Sened Station relying primarily on stealth and was severely punished for its efforts; in the desert during the day it just did not work. The American cavalrymen were stopped by withering anti-tank, machine gun, and artillery fire, and fell back to their starting positions well short of their observation objectives. A second attempt, launched during darkness, managed to insert OPs overlooking the German positions, and contributed to a successful American attack the next morning. Overall conclusions

differed from individual to individual, but most leaders involved agreed that daylight mounted infiltration in the desert does not work, night dismounted infiltration takes lots of time, and once a cavalry vehicle is seen and taken under fire, it will not survive for long. Additionally, the light tank and assault gun assets of the battalion were too far back to provide effective suppression of the enemy, a precondition necessary to begin daylight, mounted infiltration.[86]

A second critical case study involved the 81st ARB's actions in the opening stages of the German counter-offensive in February around Sidi-Bou-Zid. Contemporary doctrine was sketchy on what cavalry did when its division was on the defense; the commander of the 1st Armored Division did not care about doctrinal restrictions: the squadron was attached to one of the combat commands and ordered to screen the significant avenues of approach. In the course of the fighting two troops were virtually destroyed, the tank company was too far back to provide effective anti-tank fires, and one troop received orders to link up with an infantry battalion and defend a key hill. These were missions clearly not envisioned by FM 2-10, but common expectations from ground commanders. In hindsight the squadron had the combat power to conduct effective security operations, but much like the recon task, doctrinal guidance placed the light tanks and assault guns too far away from the recon troops. As a result, near the end of the North Africa campaign, the 81st broke up its tank company and assigned a platoon to each recon troop.[87]

These doctrinal aberrations were not isolated to the 81st ARB. The 91st CRS, working for the 9th Infantry Division in April 1943, was ordered to dismount a recon troop and attack to seize a hill while the other two troops conducted a mounted movement to contact. The entire squadron was then committed to defending their gains against a counter-attack the next day. While working for 1st Armored Division in early May, the same squadron was ordered to conduct a deliberate dismounted attack to seize a hill defended by the German Hermann Goering Division

---

[85] Ibid, 36.
[86] Ibid, 37-41.

armored reconnaissance battalion. Cavalry officers were guilty of voluntary mission creep themselves, with a recon troop commander requesting permission to conduct a spoiling attack with his attached assault guns and tank platoon against a defending German infantry company.[88] The attack was successful, as was the defense against a German counter-attack the next day. Robust mobility and firepower, organic combined arms, and a general shortage of US combat power all contributed to the employment of cavalry forces in every role conceivable, not just to conduct reconnaissance.

It is easy to conclude from these examples (and many people at the time did) that stealth recon does not work and should not be a desired capability; cavalry has to fight for information and therefore requires overwhelming firepower and adequate protection. And yet the battalion commander of the 81st ARB, interviewed that spring by AGF observers, defended the need for recon units to remain agile.

> Don't tie a recon unit down with tanks, 81mm mortars, 37mm (75mm?) SP guns, because it makes the unit too unwieldy and few officers can take care of all those additions and still do the job of gathering information. Understand me, I am in complete accord with General Scott's statement that 'recon capable of only observation is not worth the road space it takes'. The recon unit should have sufficient firepower, but too much is as bad as too little. Anyone in a recon unit who is not primarily a recon man must be there for a very good reason. If I get the armored car, then I don't want the light tank.[89]

LTC Hoy's perfect cavalry squadron would have three companies of three platoons, each platoon with two sections of two armored cars and three jeeps. The first section of each platoon would also have an assault gun. It is important to understand that LTC Hoy made these conclusions after his experience in North Africa, and after extensive discussion with the British 11th Hussar's commander, LTC Lawson. LTC Hoy noted that "the best jobs that we have done have been where LTs with a small crew, through cunning and daring, get an OP deep in the

[87] Ibid, 47.
[88] Ibid, 45-46.
[89] Bruce Palmer, Jr., "Battle Lessons on Reconnaissance", *Modern Recon*, 114. Quoting LTC Hoy, battalion commander of the 81st ARB from an interview conducted in spring, 1943 in North Africa.

enemy territory, or on this flank, and sit there for hours and report vital information."[90] Deep for

LTC Hoy was 4-5000 yards. He was also quick to point out the critical distinction between recon

in force and small group patrolling, the need to be able to do both, and the completely different

techniques and forces required between the two. LTC Hoy probably instinctively understood that

a cavalry squadron reinforced with "adequate" firepower was too tempting an asset for

commanders to use solely for reconnaissance.

Unfortunately the Army did not seem to hear all of LTC Hoy's argument, or at least the

subtle nuances. It was easier to do so because cavalry units seemed to conduct so little actual

reconnaissance, instead spending more time conducting security and combat missions. Rather

than asking why commanders were "misusing" reconnaissance cavalry on other missions, the

Army decided to better equip squadrons to accomplish the trinity role and acknowledge actual

field practice in the doctrine. It is probably fair to say that cavalry never embraced the recon

focus to begin with, and had only been trapped with that role with the surrender of the

mechanized squadrons and 7th Brigade to the Armored force, and the deactivation of the mounted

regiments in 1941. Light, stealth recon units were all that was left for a little while, and

cavalrymen marked time until an excuse for something "better" came along. Unfortunately they

were about to swing too far in the other direction, abandoning any focus on stealth recon while

rushing to embrace recon by force, security, and economy of force missions.

A flood of organizational and doctrinal changes began to impact on the cavalry force

starting in mid-1943. Combat operations had demonstrated that the troop, not the platoon, was

the basic unit of action (logical considering the squadrons had focused on fighting rather than

infiltration based reconnaissance).[91] The assault guns tended to be massed into a three-gun

platoon under troop control, and as already mentioned, the tank company was typically broken up

with a platoon given to each recon troop. MG Scott, the Fort Knox armored crewmen

---

[90] Ibid, 117.
[91] DiMarco, 51-52.

34

replacement center commander, had summed up the operational conclusions of senior cavalry and armor leaders months earlier: "In this day and age, long distance recon must be organized to fight in execution of its mission, to fight for time to send info in, and to fight for time for the main body to utilize properly the info sent in."[92]

One of the first steps to "fixing" the problems with cavalry was publication of a new FM 2-30, Cav/Mech Recon Sqdn, dated April 43. This was the first attempt at doctrine to address the difference between a light recon troop within a mechanized brigade and employment concepts for the CRS. The manual clearly acknowledged that the enemy had a direct interest in preventing infiltration, and what was necessary to overcome this resistance. "Necessary pressure is applied at a weak point by the use of a reserve element to penetrate the resistance and expose the enemy dispositions to continued recon."[93] Put more simply, recon forces need combat power support to penetrate security forces; infiltration alone is not sufficient in all cases. Sometimes an attack was reconnaissance, "it will be necessary to attack a covering force in order to develop so much of a situation as will reveal the strength and attitude of the enemy." Cavalry had an advantage because "the outstanding combat characteristics of the squadron are its great fire power and extreme mobility", at least relative to infantry forces.[94] Another new FM, 2-20, Cav Recon Troop, Mechanized, was published in January 1944, and replaced the general guidelines of 2-10 with specifics. In this manual the recon troop was redefined from the intelligence asset of a combined arms mechanized brigade to a trinity force operating within an infantry division or cavalry squadron. Combat in the form of fire and movement was a key enabler of reconnaissance, and security and economy of force required the ability to attack and defend. The purpose of the assault guns in the recon troop was to suppress the enemy to allow infiltration and penetration of security elements.[95]

---

[92] Ibid, 58. Comments sent to the *Cavalry Journal* in November 1942.
[93] Ibid, 60.
[94] Ibid, 61.
[95] Ibid, 62-63.

Along with doctrine came new equipment and organizations. All cavalry squadrons were standardized in September 1943 (armored divisions retained their organic reconnaissance battalion with four recon troops), with six jeeps, three 60mm mortars, and three scout cars per platoon, three platoons per troop, and three recon troops per squadron. All the assault guns in the squadron were consolidated into their own company, joining the tank and headquarters companies. The M8 scout car (37mm gun), M8 assault gun (75mm), and M5 light tank (37mm) were all fielded around the same time.[96] Additionally, the cavalry group was created, eventually reaching thirteen in action by the end of the war. Each corps would receive one group, and these groups would normally contain two CRSs, plus modular additional assets from corps as necessary. By the end of the war, 20,000 cavalrymen had served at the division level or below, and 30,000 in one of the thirteen groups.[97] Doctrinal guidance for the corps commanders in early 1944, FM 100-5 Operations, stated that the mission of cavalry included attack, pursuit, holding critical objectives, and special operations, and was somewhat at odds with cavalry's own definition of their specific competency.[98] In hindsight, cavalry groups in the European Theater of Operations (ETO) spent 3% of their combat committed time performing reconnaissance, 33% defending terrain, 29% conducting special operations, 10% on the attack, and 25% providing security to friendly forces; armored division CRSs performed recon missions 13% of combat days.[99] Special missions tended to center around rear area security, civilian control, and reporting and LNO duties.

LTC DiMarco's analysis of why cavalry groups focused on defense, special operations, and security at the expense of reconnaissance is remarkable, and highly relevant to the US Army in 2004. The United States Army in France struggled to occupy a large amount of space with a relatively small ground force; there were never enough infantry and armored divisions to go

---

[96] Ibid, 64.
[97] *Organization of Ground Combat Troops*, 336-337.
[98] DiMarco, 78.
[99] Ibid, 79.

around. The only way to mass sufficient combat power for offensive operations was to employ the cavalry groups to cover large amounts of the front lines, occupying mobile defenses as economy of force measures. Based solely on the number of machineguns, the nine vehicles of a recon platoon had the same firepower as a dismounted infantry company, but with greatly enhanced mobility and reporting capability. LTC DiMarco provides two excellent case studies to illustrate this point: the 14th Cavalry Group attached to the VIII Corps in the Losheim Gap in December 1944, and the 3rd Cavalry Group attached to the XX Corps around Metz in October and November 1944. At one point the 3rd CG was responsible for 20 miles of front, or over half of the corps' overall frontage. This required significant reinforcement by another cavalry squadron, French infantry, engineers, anti-tank battalions, and artillery support, but the group headquarters was equipped to handle the scope of this mission. Truth be told, these groups had nothing to do with traditional cavalry missions, and instead operated as independent medium motorized brigades. Typically these are the units referenced to justify modern US cavalry organizations, but they probably provide more insight into the SBCT concepts.

But the danger of this method of employment is well illustrated by the experiences of the 14th Cavalry Group operating in the Losheim Gap in the first few days of the German Ardennes Offensive. An economy of force mission is an exercise in risk management, and can be exceptionally expensive when the enemy lands a heavy blow in such a sector. Risk is mitigated by reliance on early warning of such an attack, rapid support and reinforcement by aerial or mobile reserves or indirect fires, and maintaining mobility. Here all of these mitigation factors failed, and the result was the virtual destruction of the 14th CG in two days of operation in the Losheim Gap. The German attack achieved operational and tactical surprise, allowing them to mass overwhelming combat power in their initial strikes. Poor weather grounded the massive American air power, and successful German infiltration and unit hugging prevented effective artillery support. The mobility of the cavalry was matched by the German mechanized units, and half of the cavalry group voluntarily surrendered their mobility advantages to man fixed

positions. Operational mobility was constrained by the requirement to block a significant avenue of approach and to cover the flanks of the adjacent, and much less mobile, infantry divisions.

Through a series of planned and accidental events, most of the strengths of the American system were neutralized, and the weaknesses of the cavalry organization and employment concept exposed. Two medium cavalry troops of the 18th Squadron fought elements of two German infantry divisions reinforced by over eighty heavy armored vehicles throughout the day on 16 December.[100] Approximately eight hundred men attempted to defend five miles of open, rolling terrain against three German regiments with significant armor support.[101] The squadron knew the area well, and had been reinforced by a towed anti-tank battalion, but Bravo Troop had been detached and sent off to support an infantry regiment to the south, and the tank and assault gun troop were in local reserve rather than located forward with the two ground troops. The second squadron, and group headquarters, had just arrived in the area on 11 December, and were located up to ten miles to the west, awaiting the publication of the group order on 16 December before implementing the new defense plan.[102] The squadron defense in depth was overwhelmed on the 16th, with the troop in the southern half of the gap surrounded and cut off by infiltrating German infantry, and the troop in the north pushed back to their second line by 1100.[103] The reinforced second line, held by two troops from the 18th Squadron and the 32nd Squadron was turned by 1600, and nightfall found the 14th Group occupying their third and final position.[104] During the night A Troop, 18th Squadron, trapped in their forward positions, surrendered to the Germans. A/32nd, without orders, withdrew to the north and linked up with the 99th Division. At 0830 on 17 December the rest of the group, minus B/32nd defending in Andler, followed. A few minutes later a heavy Tiger II battalion hit the B Troop, overrunning the village and shattering the Americans. By the end of the 17th the cavalry group was at half strength located approximately

---

[100] Charles B. MacDonald, *A Time for Trumpets* (New York: William Morrow, 1985), 104.
[101] Ibid, 103.
[102] Ibid, 108.
[103] Ibid, 109.

ten miles to the west of its initial defensive positions in the valley, and both the group commander and the 18th Squadron commander were combat stress casualties. The balance of the group was attacked at 0200 on 18 December by the lead elements of the 1st SS Panzer Division, and by 1200 that day the pitiful remnants of the unit trickled into Vielsalm almost twenty miles to the west, a spent force.

The 14th Cavalry Group failed for two reasons: the overall American operational failure to detect and react to the German offensive build up, and commitment to a mission that the unit was not designed to weather. A host of very logical constraints resulted in a nearly impossible mission for the group on the morning of 16 December. The unit was overwhelmed by superior numbers of dismounted, infiltrating infantry, direct assault by armor supported infantry, and tactical envelopment by the fast moving 1st SS Panzer Division that continued to turn the group northern flank throughout the battle. One attempt to fall back before this onslaught was pinned by surrounding German infantry, one defensive position was completely overwhelmed by the 506th Heavy Panzer Battalion before the US troop present had a chance to escape, and a counterattack on the morning of 18 December against a panzer division used up the last combat power of the group. Facing a competent, combined arms opponent with heavy armor and dismounted infantry advantages, the cavalry group lost cohesion, coordination and morale collapsed, and the unit was shattered in two days of nearly continuous combat. It is perhaps impossible to assess if an armored division combat command could have done better than the 14th Cavalry Group, but nearly concurrent combat actions at Saint Vith suggest a different outcome. Although generally successful, American employment of cavalry groups during the war must be balanced by an understanding of the risks they took, and the price to be paid when the enemy landed a solid blow on one of these units not optimized for sustained combat. Cost benefit analysis in hindsight is difficult, but perhaps an independent armored combat command represented the same commitment of resources as a cavalry group, but resulted in more

---

[104] Ibid, 110.

capability. This would be a hard conclusion to prove, but one never examined by the defenders of trinity cavalry in World War Two.

The organic CRS in each armored division presented a slightly different story. We have already seen that reconnaissance consumed 13% of their combat days, and they performed less as independent units and more as enablers for their division. It was normal for the squadron to provide a recon troop to each combat command, with headquarters retaining control of one to two recon troops (dependent upon giving Combat Command Reserve a cavalry troop) and the tank and assault gun companies.[105] There is less information available on the independent reconnaissance troop organic to each infantry division, and the small dismounted I&R platoon in each infantry regiment, but one can assume that at these lower levels the trend towards increased reconnaissance and dispersed operations continued. Defenders of the trinity school tend to ignore these other versions of cavalry from the war, and the lessons they offer.

In November 1945 the General Board published Survey No 49 titled "Mechanized Cavalry Units" in an attempt to capture all the relevant lessons from the war. Key points included that combat was necessary in order to conduct effective reconnaissance, and that stealth infiltration works only when adequate time is available and the terrain supports it.[106] Cavalry squadrons and groups were seen as effective, multi-functional units that could do just about anything with the right mix of attachments. Recommendations for new organizations centered on adding a third squadron for the group (to provide a reserve) and organic CS and CSS elements. The squadron was judged to be just about right, with every vehicle motorized and radio equipped, plenty of dismounted strength, and a good balance between firepower, mobility, and protection. The troop was limited by insufficient anti-tank firepower, and required additional assets to perform any mission other than reconnaissance or screening. Plan Three for the reorganization of ground forces prior to redeployment from Europe to the United States or the Pacific called for an

---

[105] Ibid, 96-97.
[106] Ibid, 112.

increase from 149 to 250 soldiers in the troop, with the addition of rifle platoon and reconnaissance platoon. The AGF approved only the rifle platoon while adding an 81mm mortar platoon and two plane aerial section.[107] A recommendation to add an I & R section to the infantry battalion was flatly rejected. Overall, the board felt that the cavalry squadrons and groups would probably benefit from the addition of some mechanized infantry, and leaders were interested in equipment that improved cavalry firepower, but not necessarily protection.

Over the next twenty years the Army acted on these lessons in its cavalry doctrine, organization, and equipment. In 1948 the light cavalry regiment was approved, containing three squadrons, an organic regimental support element, mixed arm platoons, and three recon troops plus a tank and artillery company/battery per squadron. The 1950 version reconnaissance platoon contained two tanks, an 81mm mortar squad, an APC mounted rifle squad, four scout jeeps, and a command jeep, a combined arms platoon model that would last until the mid-80s. New doctrine published soon after the war included FM 17-95: Armored Cavalry Regiment and Armored Cavalry Reconnaissance Battalion, FM 17-35: Recon Bn, Armored Division, FM 17-22: Recon Platoon and Recon Company. FM 17-35 was updated in 1960 and renamed Armored Cavalry Platoon, Troop, and Squadron, eliminating the need for FM 17-22. US cavalry continued to be considered a trinity force equipped with lighter equipment than armored and mechanized forces, but with significant combat power nonetheless, and a dedicated recon element at every echelon from battalion to corps (minus brigade).

Vietnam

Before anyone can draw decisive conclusions as to just what cavalry should and will do in future conflicts, he must look beyond traditional, conventional conflict. The US involvement in Bosnia, Kosovo, and Haiti are all good examples, as well as the current efforts in Iraq. But the war in Vietnam provides perhaps the best example of the wide range of simultaneous operations

---

[107] *The Organization of Ground Combat Troops*, 466.

that cavalry forces can be asked to perform, and the bridge between doctrine and employment in a dynamic environment. Cavalry troops and squadrons at that time were considered heavy, combat oriented forces, but in Vietnam they did not have a heavy conventional opponent to fight. The heavy combat vehicles modified their tactics, were employed in innovative ways, and more than justified their deployment into the theater with their firepower, mobility, and survivability. However, they did not distinguish themselves by exposing enemy units intent on avoiding contact by operating in rough and urban terrain and by blending in with the local population.

As the US contemplated committing heavy and cavalry forces to Vietnam, the first concern was problems with the organization of those units. By the mid-60s, cavalry troops still maintained combined platoons that contained tanks, tracked recon vehicles, and mortars. In 1959 the Army had formed the first experimental aerial recon and security troop, and by 1965 each division squadron had one of these troops in addition to its three ground troops.[108] But for employment in Vietnam, people worried that the tanks would be too heavy to maneuver through the jungle and rice field covered terrain. The immediate inclination was to pull the tanks out of the platoons and employ only M113 Armored Cavalry Vehicles (ACAVs). When the Army decided that it wanted to deploy the 11th ACR, this set off a major debate. MAC-V insisted that the M48s in the tank companies be replaced with M41s, and that the line troops replace all M114s and M48s with M113s; if this could not be accomplished the command would prefer a mechanized brigade instead.[109] The final compromise solution was that tank companies retained their M48s but the troops converted to exclusively M113 ACAVs. In hindsight, COL William Cobb (one of the regiment's commanders during the war) was happy with this configuration for the ground troops, focusing on the personnel strength necessary to move and fight vehicles while still generating sufficient dismount strength for foot patrols and tunnel and bunker clearing.[110]

---

[108] Donn Starry, GEN, *Armored Combat in Vietnam* (Indianapolis: Bobbs-Merrill Co., 1980), 51.
[109] Ibid, 72-73.
[110] Ibid, 95.

This issue came up again with the fielding of the M551 Sheridan in 1969, which was designed and fielded to replace the M48s in the division and regimental cavalry troops. The new tanks were light and maneuverable, had much better night sights, and crews loved the 152mm anti-personnel round. On the negative side, the Sheridan could not survive a mine strike like the M48, had problems with its combustible ammunition when the armor was defeated, and extreme moisture shorted out the electrical fire-control system.[111] The Sheridan was an improvement over making tank crews ride M113s, but judged a compromise over the clearly preferred M48, or even the M41. In the end, if a tank crew moved up from an M113 to a Sheridan they were happy; if they moved down from an M41 or M48, they were disgruntled.

The final organizational debate centered on logistics support of the squadrons and regiment, and the requirement for aviation support at lower levels in the organization. Due to a lack of sufficient organic maintenance and supply assets, and the fact that squadrons tended to operate on detached service rotating throughout the country, repair parts had a hard time catching up with the units. Area support just did not work for the cavalry units; the General Support (GS) assets were located too far to the east along the coast, often refused to leave the safety of their base camps to provide field support, and could not effectively transfer parts from one GS site to another when a requesting unit was transferred to a new military region.[112] General Starry's recommended solution (directly echoing the Army Concept Team in Vietnam's 1971 report) was troop level maintenance teams, an FSB equivalent within the ACR, the fielding of some tracked resupply vehicles, an increase in the number of recovery vehicles in the heavy cavalry units, and improved doctrine for forward logistical support of engaged tactical units.[113] Aerial reconnaissance proved itself essential during the war, but divisions had a habit of retaining direct

---

[111] Ibid, 142.
[112] Ibid, 181.
[113] Ibid, 181, 184, 185, 224.

control of the aerial recon troop and limiting the squadron's access to these assets; the obvious solution was more aerial reconnaissance assets, both at the division and squadron level.[114]

The final report on the employment of armor produced by the Army Concept Team In Vietnam (ACTIV) in 1971 provides a number of fascinating observations on equipment, organization, and tactical employment of forces. The report acknowledged that armored cavalry was employed in the same manner as combat maneuver battalions rather than focusing on the traditional missions of reconnaissance, security, and economy of force.[115] Mobility compatibility was listed as a problem, with wheeled vehicles (primarily resupply trucks) unable to operate in forward areas due to a lack of roads, and as a result they seldom left the base camps and major highways.[116] A lack of assault bridging within division cavalry squadrons and mechanized infantry battalions was noted as a major concern; recommended solutions centered on providing a M113 chassis vehicle bridge similar to the AVLB capable of supporting Sheridan movement.[117]

Perhaps the most relevant issue addressed by the ACTIV report was new ideas for maximizing the value of sensor equipment within the heavy battalions, and integrating these assets with reconnaissance forces. The report acknowledged that the ten M113 vehicle scout platoon in each tank and mech battalion did not operate as a recon force in Vietnam, but rather as another offensive combat element; "mounted reconnaissance, as defined by doctrine, was rarely conducted in RVN, as it was generally ineffective".[118] The platoon was further divided into two sections and often employed separately. This loss of reconnaissance was compounded by poor results from ground surveillance radars (GSR) and night detection devices, attributed to poor maintenance and employment technique by untrained operators. The perceived solution was a surveillance platoon in each heavy battalion/squadron with both GSR and night observation

---

[114] Ibid, 221.
[115] Army Concept Team in Vietnam, "Optimum Mix of Armored Vehicles for Use in Stability Operations" (San Francisco: ACTIV, 1971), II-14.
[116] Ibid, II-18.
[117] Ibid, III-10.
[118] Ibid, B-14, 19-20.

device sections, integrated in a new D Co that included the scout platoon, mortar platoon, command tank/carrier section, and surveillance platoon.[119]

The survey also noted what the squadrons were doing in the field, either collectively or individually. Each squadron had an armored engineer platoon permanently attached, and lost operational control of its organic air cavalry troop. Troops typically reinforced their supply section with an additional vehicle and an average of three personnel. 3/11 ACR consolidated their troop mortars into a squadron battery with six guns, and also consolidated all GSR systems into a squadron surveillance platoon.[120] The final recommendations of the report included a standard, ACR model cavalry troop across the Army equipped with M113s and Sheridans, and the inclusion of a M113 mounted recon section in the Regimental headquarters troop.[121]

General Starry argued that excellent doctrine existed to guide the employment of cavalry in Vietnam, a subject not included in the scope of the ACTIV study. In 1967 the contemporary version of FM 17-35, Armored Cavalry Platoon, Troop, and Squadron, contained a chapter on rear area security that included notes on combating guerrillas, maintaining road security, base defense considerations, aerial reconnaissance integration, guidance on reaction forces, and how to conduct convoy escort missions.[122] As US armor was committed to combat, these skills were further refined, and a variety of new techniques developed to handle unanticipated challenges. But not for the first time, doctrine could not seem to keep up with current practice in the field.

In 1967 a power struggle developed between Continental Army Command (CONARC), Fort Knox, and the Mechanized and Armor Combat Operations in Vietnam (MACOV) study group. MACOV and Fort Knox were frustrated that doctrine did not reflect the current "best practice" methods from Vietnam, but CONARC refused to alter the documents, claiming that initial US successes would be overcome as the VC fielded better anti-tank weapons and tactics to

---

[119] Ibid, IV-3, 14, 16.
[120] Ibid, B-36-37.
[121] Ibid, D-6.
[122] Starry, 50.

deal with mounted US attacks.[123] The MACOV study demonstrated that over a year of field experience supported the idea of mounted infantry and tank assault against dismounted opponents even in rough terrain. Even as this study began the process of revolutionizing American infantry combat concepts (the very beginnings of DePuy's panzer grenadier and infantry fighting vehicle ideas), the published results were too long and bulky to reach a mass audience, severely limiting their ability to drive positive change.

Cavalry squadrons seemed to spend the majority of their time in Vietnam working route security issues and developing a wealth of practical TTPs in the process. When the 11th ACR was notified of their impending deployment to Vietnam, they were informed that their primary mission would be convoy escort and route security.[124] Often units were committed to stretches of major highways and ordered to keep them clear and safe for friendly convoys. This entailed route security strong points, patrols, and convoy escorts, an ability to handle mine strikes and ambushes, securing troop laager sites out in the field for multiple consecutive days and the occasional cordon and search of the jungle. There were also various base camp and key installation/fixed site security missions. General Starry goes into great detail on successful reaction to ambush, route security, and mine strike procedures, each of which were probably being relearned in Iraq over the last eight months.

It seems as if much of the US tactic for route security was to run cavalry troops up and down dangerous sections of the road hoping VC elements would trigger an ambush. Tanks would often travel known enemy areas at night (known as thunder runs), hoping to catch, interrupt, or discourage enemy digging efforts. Huge amounts of effort were expended to stop enemy mining, but in the end most techniques were only moderately effective and it became a matter of who could better stand the attrition of forces. Between November 1968 and May 1969, 77% of all

---

[123] Ibid, 87, 89.

[124] Mark A. Olinger, "Vietnam-Supply Operations and Security Lessons Learned", *Quartermaster*, Summer 1998. pg 2 in the web version of the article at:
www.quartermaster.army.mil/oqmg/Professional_Bulletin/1998/Summer_1998/vietnam.

APC losses and 73% of tank losses in Vietnam were caused by mine strikes.[125] M48s, when available, led all convoys. Strong point permanent positions were established on the worst routes. Troops established moving, sustained tactical assembly areas in the vicinity of the toughest and most important roads. Mine plows were tested and fielded, but could not fix the problem. Extra armor was added to the M113 and Sheridan to help deal with mine strikes. 1-10 Cavalry focused on this mission set almost exclusively for its five years in the Pleiku area, as did 1-69 Armor, and 1-1 and 2-1 Cavalry, detached from 1st and 2nd Armored Divisions and sent to Vietnam as independent squadrons.[126] In the end this wealth of experience resulted in three route clearance techniques that have disappeared from our professional language: deliberate sweep, hasty sweep, and mine reconnaissance.[127] Deliberate sweep required a company team with dismounted infantry, tanks, and engineers with aerial and artillery support on stand by and advanced at .25 kph; hasty sweeps were similar to thunder runs. Security was further defined as route, area, and convoy, and when heavy battalions were not performing security or clearing missions, they were typically on call for quick reaction forces (QRFs) or offensive sweeps of the countryside.[128]

Despite the experience and expertise developed over months of practice, disaster still struck from time to time. In May 1967 a mounted patrol from K Troop, 11th ACR was ambushed while conducting a route recon, losing eight vehicles and 44 men killed or wounded in a matter of minutes. In December 1967 it was C Troop, 3-5 Cav's turn. Two platoons were caught in a VC ambush that resulted in nine of eleven vehicles destroyed, 42 casualties, and no confirmed enemy casualties. Subsequent investigation determined that the convoy was destroyed because of a lack of fire support, air cover, vehicle security and awareness, poor reaction to contact drills, and too much dispersion between vehicles and the two platoons to mass overwhelming return firepower

---

[125] Starry, 79.
[126] Ibid, 107. Olinger, 3.
[127] Olinger, 3.
[128] Ibid, 4.

when the ambush was initiated.[129] It is a reoccurring theme of all the combat examples in *Armored Combat in Vietnam* that firepower, immediate and overwhelming, was the key to survival and then success in most actions. The second contributing factor to success was violent, aggressive maneuver enabled by relative mobility (ability to handle the terrain and sustain enemy fire).

US armored and cavalry units emerged from Vietnam with excellent reputations. General Arthur L. West, Jr., head of MACOV, declared in 1967 that armored cavalry was probably the most cost effective force on the Vietnam battlefield.[130] This organizational faith in the force was demonstrated by the redeployment sequence for armored and cavalry units relative to infantry formations; cavalry came out last, and continued to represent a larger and larger percentage of the US combat battalion strength in country from 1970 to 1972. This success was based on massive firepower, tactical mobility generated by tracks and armored protection, mental flexibility of armored and cavalry leaders, and the inherent combined arms nature of division cavalry squadrons and the 11th ACR. It proves without a doubt the place for heavy forces in guerrilla and unconventional warfare, if not any special niche for cavalry in this area.

But what can one conclude about the correct configuration and missions for cavalry units? In hindsight, it seems that combined tank-infantry teams and task forces could have performed the exact same missions as those performed by the cavalry troops and squadrons. The range of combined arms resources and combat vehicles available to today's task force and brigade commander closely replicate those of the squadron commander in Vietnam, particularly if division aviation support is available. Cavalry in Vietnam seemed to discover the enemy by running into his ambush, and not always with positive results. The few examples of successful reconnaissance where we found the enemy before he fired at us were conducted by aerial cavalry. This suggests that combat or tactical reconnaissance forces needed armored protection and that

---

[129] Starry, 108-109.
[130] Ibid, v. Quoted from the MACOV study by General Starry.

their major technique of finding the enemy is by being shot at by that enemy. It also demonstrates the interchangeable role performed by heavy cavalry and armor forces in most US conflicts. Route security is a major issue in counter-insurgency, and if a well armed and armored cavalry force is not available, then traditional armor and infantry forces will have to perform the role instead. Finally, institutional change is difficult. Field forces often discover the answer to new tactical problems quickly in order to survive, but getting the bureaucracy to bless these lessons is often the hardest part; doctrine has to be updated in the field, by an attached "what works" cell answering to FORSCOM and not TRADOC. The technique used to do this is often as important as the lessons themselves; no one is going to learn much from a three volume, 1,000 pages plus document produced in only 150 copies. And if it is not captured in the official doctrine, then tough lessons learned on critical combat skills will be lost in the short period of time it takes combat veterans to rotate on to new units and jobs. The tactical lessons of Vietnam provide a perfect example, lessons our soldiers wish they had at their finger tips in the first six months of occupation in Iraq.

Operation Iraqi Freedom

Experience from World War II and Vietnam offer two sets of mission focus for the modern cavalry unit. Which is the correct priority? What is a light cavalry leader to do if he focuses on the trinity school solution and realizes he does not have the resources to succeed? How has the passage of time, with new technology, environments, and threats, impacted this debate? Operation Iraqi Freedom provides great insight into all of these questions, and suggests that the cavalryman's job is getting harder, not easier. He must now be relevant in both the conventional fight and the unconventional resistance to occupation and nation building, and correctly infer the relationship between heavy maneuver forces, heavy cavalry, and light reconnaissance forces.

Conducting research on the ground campaign of Operation Iraqi Freedom is frustratingly restricted at this time. Vast amounts of primary sources are available at the Combined Arms

Research Library at Fort Leavenworth Kansas, but most of this information cannot be released in public documents. Other, more general sources tend to be less focused on the specifics of cavalry operations at the division level and below.

A discussion with the scout platoon leader from 3-69 Armor, 3rd Infantry Division, illustrated the cumbersome workarounds battalions are forced to extemporize to enable scouts to do their job.[131] CPT Arnett explained that his battalion commander directed him to swap three M1025s for three M113s from the battalion maintenance platoon in order to form a heavy scout section.[132] By every means available the platoon managed to get two active night vision devices on each vehicle, although none of them could be stabilized and were therefore of marginal value on the move. During the movement to contact from the Saudi border to the Karbala region, the platoon was conducting a route reconnaissance in front of the task force, but at 25 to 30 kilometers an hour. CPT Arnett, rapidly shifted from an executive officer job to the scout platoon, pointed out that he had not been to the Scout Leaders' Course, and was heavily reliant upon his platoon sergeant for technical and tactical advice. He also was quick to explain that he "obviously was not really doing a route recon to standard traveling at 25 kpm." At some point during the advance, the BRT, which had been sandwiched between 3-7 Cav and CPT Arnett's scout platoon, was shifted to flank security, leaving only the division cavalry squadron between this ad hoc scout platoon and the enemy. While the BRT was to his front, CPT Arnett ensured that his senior scout sergeant was monitoring their net for early warning and coordination. After passing through the BRT, the platoon did not similarly monitor 3-7 Cav's net, relying on the task force staff to provide critical information and synchronization if necessary. During the halt around Karbala the platoon screened the task force assembly area, and then remained in the rear area during the brigade attack into Baghdad.

---

[131] CPT William Arnett, interviewed by the author, 27 February 2004, Leavenworth, Kansas. CPT Arnett (then a first lieutenant) was the scout platoon leader in 3-69 AR, 1st Brigade, 3rd Infantry Division during the ground offensive phase of OIF.

Based on this discussion, the scout platoon for 3-69 Armor was reinforced to the reasonable extent possible with internal assets, employed for early warning and screening purposes until the local situation became too risky, and then was shifted out of harm's way when serious combat was anticipated. This is not intended as criticism in any way. The battalion did the best it could in a difficult situation with limited resources and unforgiving terrain and tempo for light scout operations. The platoon demonstrated its professionalism and bravery by traveling between two friendly heavy forces equipped with tanks and Bradleys, protected only by fiberglass and armed with heavy machineguns and grenade launchers. Had an enemy light force infiltrated between the division cavalry and the heavy task force, this platoon could have been caught in the middle of a murderous cross fire with virtually no protection. This scenario exposed virtually every weakness of the current scout platoon configuration while playing to none of its strengths. The critical question is: was this an aberration, or the normal situation that heavy battalion reconnaissance will face during conventional operations over the next ten years? Our theoretical explorations of future conventional combat, with its emphasis on rapid decisive operations, suggest this will be the case. Regardless, the answer to this question lies at the heart of future battalion reconnaissance equipment, organization, and training.

3-7 Cavalry, the division cavalry squadron, faced different challenges. To a large extent the squadron was employed as a forward detachment, racing ahead of the division to secure key river crossings before the enemy could blow them up, in addition to acting as an advanced guard for the movement from the border to Karbala. The squadron commander, LTC Terry Ferrell, envisioned little combat short of a 100km radius around Baghdad, where it was expected the Republican Guard would make a stand.[133] During the ground advance, A Troop managed to get two tanks across a damaged bridge before it collapsed into the river, and spent the next 24 hours

---

[132] CPT Arnett. The platoon had lost its armored M1114 vehicles to the BRT about a year earlier and they had not been replaced in time for the war.
[133] LTC Terry Ferrell and MAJ Brad Gavle, Interviewed by COL Cherry, 25 May 2003, interview transcript, CALL OIF Collection, Combined Arms Research Library, Leavenworth, Kansas, 1.

attempting to reunite the separated elements of the troop.[134] In a lessons learned article for Armor

magazine, the squadron executive officer repeated a number of issues raised by division

cavalrymen from Desert Storm, and reverted to some practices from World War Two. Mixed

platoons of tanks and Bradleys (traditionally referred to as hunter-killer teams) were the standard

unit of employment, with two tanks and three Bradleys in each team.[135] The squadron needed

additional MI, engineer, and artillery assets to perform its wartime mission, assets the division is

not currently resourced to provide.[136] Attached ADA Linebackers were employed primarily for

local security at C2 and logistics sites, and additional M113s were drawn from storage to equip

the retransmission section and to provide additional local security. It was Major Keith's

conclusion that all M998 HMMWVs should be replaced with M114s, and cavalry squadrons

should have additional heavy recovery assets and maintenance personnel.[137] External logistical

support was the most glaring problem; the division was forced to create a forward support

company out of MSB assets to bridge the gap between the squadron field trains and the closest

brigade support area, another requirement that was not resourced. The 700-kilometer advance

through southern Iraq exposed the problems inherent in this shortage of resupply and recovery

assets dedicated to support the cavalry squadron, and echoed General Starry's conclusions from

Vietnam.

The role performed by the squadron was essential to 3rd ID operations; the real question

was if the cavalry squadron was consumed leading the advance to contact, who was answering

the division commander's intelligence requirements? The obvious answer is the intelligence feed

from V Corps combined with the division MI battalion and incidental information from the

cavalry squadron (while primarily acting as a forward detachment/advanced guard). Was this

---

[134] 1LT Christian Wade, 1LT Matthew Garrett, 2LT Jason Fritz, 2LT Luke Devlin, 1LT Jon Linthwaite, Interview by MAJ George, 29 May 2003, interview transcript, CALL OIF Collection, Combined Arms Research Library, Leavenworth, Kansas, 5-6.
[135] J.D. Keith, "3d Sqdn, 7th US Cav Up Front; OIF Lessons Learned", *Armor*, Sep-Oct 2003, 26-31, 26.
[136] Ibid, 28.
[137] Ibid, 29, 31.

adequate to drive division level decision-making? The answer to that question is not clear at this time, and will require additional research in the OIF records, but it is safe to assume that the division commander would have welcomed an additional ISR asset tailored to gather aerial and ground intelligence in order to answer division PIR. What such an organization would look like is open to debate, but it is fair to say that the current division cavalry squadron is hardly such an optimized force, and is seldom employed in this manner regardless its suitability. Could another maneuver element fulfill the division security requirement freeing up the squadron to focus on reconnaissance? The answer seems to be "probably". LTC Ferrell implies a lack of intelligence focus when he admitted that PIR and CCIR were not much of an issue, as his subordinates reported just about everything.[138] He also offered that the intelligence provided by the division G2 was of little practical value, and his lack of faith in JSTARS and lack of division UAV support when in direct contact.[139]

In a related question, General William Wallace, V Corps commander during OIF, warned against the temptation of relying on sensors and technological answers to the intelligence dilemma.[140] Referring primarily to the environment after general combat ends, General Wallace cautioned "once the shooting abates a bit, the stability and support operations that follow are largely a human endeavor. It's not an electronic endeavor. It can be assisted by computers that help develop the databases, but people have to ask the question of other people." High orbit sensors are also useless under certain circumstances, "from 30,000 feet a guy with blue jeans and a polo shirt could be a bad guy or a good guy or the local magistrate for all you know." As the US Army struggles to understand what battle command at the division level and higher looks like in the 21st Century, future force designers must remain cognizant of the vast differences in requirements between echelons and types of contingencies. Major theater war is a vastly

---

[138] Ferrell, 4.
[139] Ibid, 5.
[140] *Kansas City Star*, 7 November, 2003. Interview with LTG William Wallace soon after his assumption of command at Fort Leavenworth.

different problem from support and stability, but assets must be able to perform reasonable well in both. This conclusion is supported by LTG Wallace's comments above and has been recently demonstrated in Iraq as US forces transitioned from Phase Three to Phase Four tasks with no visible break in operations.

The results of these three major case studies, World War II, Vietnam, and OIF, perhaps leave more questions than answers. US cavalry seemed to be "misused" in each conflict, moving a great distance from pre-war thought to final employment and organization. Cavalry also seemed to end up performing missions interchangeable with other mechanized forces, emphasizing security and economy of force over reconnaissance. OIF suggests that the challenge will only get harder, with units moving from conventional to unconventional situations almost at random, making training, equipment, organization, and doctrinal focus even tougher. These standard mission examples should fuel our future training, but what mission set and examples to focus on? It is a difficult question, and the answer requires difficult institutional decisions and focused research. More work needs to be done on cavalry employment by echelon in all types of US organizations since 1990, and this research must then drive final refinement to doctrine, training, equipment development, and organizational structure. Many of the "answers" proposed by experts today lack this necessary understanding of the reality of the modern tactical and operational challenges faced by US cavalrymen. Regardless the final answer, it will not be a simple, one size fits all security blanket, but a complex nuanced program specific to each unit based on echelon and type of equipment base, further refined by the operational context of employment. This does not make tactical trainers and leaders comfortable, but it is the reality of future conflict. Based on everything examined up to this point, cavalry must focus on stealth and aggressive reconnaissance and hand security and economy of force over to new partners, either generic maneuver forces or new, security optimized units. Reconnaissance, never a strength of the modern US cavalry, has gotten too complex to leave to generalists.

CHAPTER FOUR

THE CURRENT STATE OF CAVALRY AND A LOOK TO THE IMMEDIATE FUTURE

Training Our Cavalry Units and Leaders

Perhaps as a result of the mixed message of history, or perhaps just because of laziness, cavalry visionaries seem to be at war with themselves. Major Bill Benson argued in *Armor* that cavalry units suffer because very few officers are allowed to become experts in the subject.[141] Since cavalry is not a branch, armor officers come and go between armored battalions and cavalry squadrons, and infantry and armor officers (and some MI officers) fill scout platoon and BRT positions. Most of these leaders get an opportunity to attend some cavalry focused training (either Scout Leaders Course or the Cavalry Leaders Course) at Fort Knox, and a lucky few attend both. Through personal study, training exercises, CTC experiences, and perhaps an operational deployment, such an officer could become competent in his particular area of cavalry, and of the general doctrine for the field. Unfortunately, there is no guarantee that his next assignment will utilize that experience. The officer could move from a heavy cavalry unit to a light unit, or vice versa, or transfer within the tank and cavalry community. The process continues from lieutenant to captain, captain to major, and major to lieutenant colonel. New officer management models will attempt to stabilize leaders in their first assignment for seven years, but this does not address major and lieutenant colonel assignments. Differences between armor, light cavalry, and heavy cavalry are becoming significant enough that this generalist approach is a bit too much to ask of the individual, and harmful to the organization. Treating all enlisted 19Ds (scouts) as if they are interchangeable is a similar disservice, but a trend occurring across all Army branches and MOSs. The Sergeant or Staff Sergeant coming from 3rd ACR

---

[141] CPT William Benson, "The Cavalry Paradigm", *Armor*, July-August 2001, 8-15, 10. CPT Benson is now a Major, and has served in 3rd ACR, 1-7 Cavalry, and provided AC/RC support to the Tennessee National Guard (278th ACR). The Army demonstrated its respect for his specific knowledge of cavalry operations by assigning him to Fort Carson in a tank battalion, the same post that houses the 3rd ACR.

where he was a CFV commander will initially struggle when assigned as a section leader in a HMMWV mounted battalion scout platoon that relies on stealth over firepower and armor. For some scouts this will represent their third significant change in equipment and employment philosophy, having perhaps started their career in the Army in a M113 and tank equipped mixed platoon.[142]

Doctrine, organizations, and equipment do not remain static. New doctrine is written, new organizations established, and new equipment fielded constantly. It is hard enough to rotate between like units, complete professional education requirements, and serve in the occasional institutional base billet and still remain technically and tactically proficient. This becomes virtually impossible when senior leaders are rotated between three radically different sub-branches. One can easily think of examples where this case is overstated (armor lieutenant then serves as a captain in a heavy squadron), but because the Army does not individually manage armor, infantry, and cavalry leaders, the potential exists. Sharp leaders will rapidly adjust with little harm to their careers or their units; stubborn or less astute leaders hurt the Army more than we care to admit. Even if our schools and doctrine were perfect, it is too much to ask leaders to rotate through three very different types of organizations and stay current in all three. We exacerbate the problem with less than perfect doctrine and education.

Cavalry Doctrine

Until recently, techniques emphasized in cavalry doctrine (troop and scout platoon) and training schools were at odds with ISR doctrine published by Fort Huachuca and Fort Leavenworth, and did not adequately differentiate between heavy and light cavalry organizations and the typical operation framework that these two different groups navigated within. New

---

[142] Experience of SFC (then SSG) White from my scout platoon at Fort Bliss. His first tactical assignment was in a cavalry regiment with mixed platoons of M113s/ITVs and tanks. After approximately a four-year break as a recruiter, he then moved to CFVs in 3rd ACR, and then transferred to a M1025 equipped platoon in Korea. An excellent soldier, he still struggled to master the nuances of his new equipment and organizations.

doctrine is much better, but hardly perfect, and will take years to integrate at the grass roots level.

Doctrine attempts to focus effort by emphasizing Priority Intelligence Requirements (PIR) and

Named Areas of Interest (NAIs), yet our MTPs and schools teach scout platoon leaders to apply

the generic Zone Reconnaissance collective task to virtually all forward movement. Nuances of

the doctrine are misunderstood or ignored, with equal emphasis placed on all terrain and enemy

forces and no concern over the larger mission context or timeliness of information requirements.

A rule of thumb is a scout platoon or cavalry troop needs an hour per kilometer to conduct a

thorough zone reconnaissance, making the unit moving at this speed irrelevant to most tactical

problems.

A careful reading of the other two reconnaissance options from the MTP (Route and

Area), carry problems of their own. Route reconnaissance quickly defaults to zone

reconnaissance; the MTP emphasized that all terrain that can influence the route must be cleared,

and it is a short mental leap before you are engaged in another zone recon. Area reconnaissance

acknowledges that some space is relatively more important, but is strangely silent on how you get

to the area recon objective (an NAI, but with no specific linkage in the doctrine that this is how

area recon objectives are born) to begin this microanalysis, so again the default to zone recon up

to the area recon objective. The 1998 version of FM 17-98 does mention infiltration, and spends

less than four pages explaining what it is, how to do it, and how to integrate attempted infiltration

with the resources of the battalion/brigade to improve the chances of success. The doctrine is

equally shabby in describing what you do in order to conduct resupply, casualty evacuation, and

relay information over large distances using only FM communications after infiltrating through a

counter-reconnaissance screen. It was an afterthought in the manual and it shows. But at least it

is in the 1998 FM, the MTP does not list or describe Infiltration, nor include the concept within

the larger task of Area Recon.

In December 2002 Fort Knox published a new scout platoon manual, and a new light

cavalry troop manual (FM 3-20.98 and FM 3-20.971 respectively). These manuals make

significant progress on many of the issues discussed throughout this monograph concerning effective reconnaissance with light assets, but they are so new that they have not replaced the common body of learning from other sources (experience, formal education, and older doctrine). Based on a review of the Programs of Instruction for the Scout Leaders Course and Cavalry Leaders Course, they have not significantly impacted how we train reconnaissance leaders yet.[143] The current scout platoon MTP was published in 1996, the heavy cavalry troop MTP is no longer available at the Reimer on-line library; new ones are probably on the way, but in the meantime, leaders are doubtless confused and frustrated by the disconnect between the current FMs and MTPs. Furthermore, short of returning to Fort Knox for formal education, the Armored Force is not selling the new doctrine to organizational units. *Armor* magazine has been relatively silent on the issue, and mobile training teams (MTTs) are not moving out and engaging reconnaissance leaders in the force. Maintaining doctrinal currency is every leaders' personal responsibility, but the Army is busy, and people remember what they were taught at the Scout Leaders' Course and ANCOC, not a manual the size of the New York City telephone book with a bunch of radical new ideas.[144] We have written some great new doctrine, but we have to get this information out among the common users.

Problems with doctrine were most significant in coverage of light forces before the wave of manuals in late 2002, but heavy cavalry doctrine is hardly perfect. The latest heavy cavalry troop FM was written in 1995, and there is no current MTP posted to the Reimer digital library. Security doctrine for the heavy force is solid; it perhaps needs to address counter-reconnaissance by the heavy troop and squadron in complex terrain, but the current documents are adequate. But reconnaissance with heavy scouts is a bit confusing, and rapidly seems to degenerate to a

---

[143] POIs emailed from 3rd Squadron, 16th Cavalry Regiment, Fort Knox Kentucky, September 2003. SLCPOI dated 27 July 2001. CLCPOI dated 21 July 2000. I am sure that Fort Knox will update the POI based on the new doctrine (and has most likely already integrated many of the TTPs) as soon as they can, but TRADOC is notoriously slow when it comes to approving changes to POIs.
[144] The new FM 3-20.98 is 8.5" by 11", covers every version of scout platoon in the US Army (heavy and light), and contains approximately eight hundred front and back pages!

movement to contact.[145] Well meaning *Armor* authors seem to confuse a moving security mission somewhere between screen and guard, and the three types of reconnaissance.[146] In an article that begins by talking about focusing reconnaissance effort, the main point of discussion rapidly devolves into the best techniques to find and kill the enemy while conducting a mobile screen or guard.[147] Because heavy cavalry only truly makes sense within the context of the division or corps operation, it is easy to see why doctrine loses its way. Without a main body to focus security effort on, or division and corps PIR to answer, the heavy regiment and squadron struggle to put tactical TTP into realistic context. The result is often unrealistic "lessons learned" and institutional knowledge that does not hold up at the CTCs or in war.

Cavalry Schools

Fort Knox offers two three-week schools to help train cavalry leaders: the Scout Leaders Course (SLC) and the Cavalry Leaders Course (CLC). SLC is open to any lieutenant that has completed the Basic Course, with priority going to those with assignments to cavalry or reconnaissance units, and 19D NCOs (E6 or E7) that have completed BNCOC. The course consists of approximately twelve days of classroom instruction followed by five days of field training. Classes range in size from 18 to 30 students per cycle, with small groups of four to eight students with an E6 or E7 primary instructor. The school emphasizes intelligence preparation of the battlefield, threat concepts under the Contemporary Operating Environment (COE) construct, route and obstacle evaluation, demolitions, reconnaissance planning and command and control,

---

[145] After nearly eighteen months of training in preparation for an NTC rotation, my scout platoon invented the term "Zone To Contact" to define our typical offensive mission. This was by no means a reconnaissance mission as envisioned by the scout MTP or FM, and was basically a standard movement to contact with a small element spread over a five kilometer front hoping to detect any enemy force, no matter how small or hidden.

[146] CPT Scott K. Thompson, "Focused Recon and Developing Battle Space in the Armored Cavalry Troop", *Armor*, March-April 2003, 14-19.

[147] "Screen" in the older sense of the term, preventing effective enemy reconnaissance against the friendly main body, a term since replaced by counter-reconnaissance in doctrine and the CTCs.

actions on contact, and the impact of the urban environment.[148] Graduates are expected to have

achieved mastery of the appropriate troop leading procedures, rapid decision making, and in

preparing and issuing operations orders for reconnaissance missions. SLC has always enjoyed an

excellent reputation throughout the armor community as a tough, realistic, and relevant course.[149]

And yet, in hindsight, there seem to be problems.

The current POI is remarkably similar to the 1992 version. Of the 37 hours (out of a

course total of 217 instructional hours) spent on common skills, twelve are spent evaluating

routes and obstructions, and eleven on demolitions. The COE threat and IPB each get seven

hours each; troop leading procedures about eleven hours (in the scout tactics block). There are

numerous exams and graded terrain board and simulation exercises that rely on MTP standards to

ensure mastery of the material. But this is perhaps a part of the problem. Is the school

emphasizing the correct common tasks in the correct proportion? Students must be graded on

something other than instructor opinion, but we have already pointed out the problems with the

current (1996) MTP and its irrelevance to many of the concepts in the 2002 version of FM 3-

20.98. The course is not sub-divided by heavy and light cavalry platoons; the subject matter and

practical exercises cover a mix of scenarios and unit types. The graduate has a general

understand of the three major sub-groups, but mastery of none. A graduate of the course serving

in A Troop, 3-7 CAV in the early stages of Operation Iraq Freedom did not think much of the

course. "But even in scout leaders course (as opposed to OBC), [we] didn't go into tactics a lot.

It was all light cavalry training work, and a majority of the Army isn't light cav, its heavy

Cav."[150] Since the Army has recently embraced reconnaissance as the priority for its brigade and

---

[148] 2001 POI and web site information. www.knox.army.mil/school/16cav/studentinfo.asp?

[149] I graduated from the (then) Scout Platoon Leaders Course in Spring 1992 and was very impressed. My points of reference were the Armor Basic Course, Ranger, Airborne, and Air Assault schools. I was impressed with the small group method, reliance on thorough reading and discussion of the doctrine, expectation that officers would do their homework and come to class prepared, and professionalism of the instructors. All of these conditions were in marked contrast to the Armor Officer's Basic Course as it existed in 1991. I think this is the source of the school's excellent reputation, not the relevance of its material or methods.

[150] 1LT Christian Wade, *et al*, 12.

battalion cavalry forces, SLC does not seem to have kept up, or offer the right focus to the right officers. The amount of time spent on other skills sets needs serious reappraisal.

It is heresy, but I suggest that route reconnaissance as currently defined by doctrine and taught at SLC is virtually worthless, and the same goes for demolition training. It seems that scout platoons at the CTCs and in war are tasked to determine if certain avenues of approach can support task force movement; this has become the bloated route reconnaissance task that insists every curve, slope, culvert, lateral route, overlooking terrain, and bridge must be thoroughly examined, classified, and annotated. This process takes a huge amount of time and resources, and often results in a product with too much irrelevant data that arrives entirely too late. As a battalion S3, I want to know if a route will stop heavy armored vehicles, and if the enemy has created any minor engagement areas at likely choke points. If such obstacles or ambushes exist, I want to know if workable bypasses exist. Local terrain and weather obviously play a significant part, as does the level of unit the scout unit is supporting; will this information drive the maneuver of a heavy task force, or a multi-division corps? This is a fairly complex tactical problem that demands flexible doctrine, TTPs, and experienced and savvy scout leaders. Current US doctrine seems to assume the worst and reduces the art of solving this problem to a step-by-step checklist that almost ensures scout failure. The platoon will never cover the entire approach march route, much less make it to the main defensive area, where the critical PIR will be answered. Perhaps the tactical task should be split into "maneuver avenue of approach recon", and the traditional "route recon", with the first task emphasizing the tactical context described above, and providing the focus for effort at the SLC.

Bridge weight classification is critical, as was reaffirmed during Operation Iraqi Freedom, but trained engineers struggled to provide accurate advice when the structure had sustained combat damage; we need better tools and experts, not jacks-of-all-trades making a half educated guess. The ability to employ demolitions is a great skill, but again, I am not sure it demands top billing at a school designed primarily for platoon leaders in an era where we are

61

emphasizing reconnaissance over security and economy of force. Scouts that can employ demolitions are of great value in the counter reconnaissance fight and during delaying actions, but this skill is not critical to effective reconnaissance. It can be replaced with something more relevant at SLC. This is not to say that some cavalry units will not train on this task at home station. Engineers can train scouts if commanders feel this will be a critical skill based on unit METLs and existing war plans. Perhaps it is essential for scouts in Korea, but not necessarily so for those in III Corps.

Older doctrine's generic approach to reconnaissance and security missions was reinforced at SLC. Platoons conducted every reconnaissance mission as a default zone recon in a platoon vee formation with a simultaneous departure spread equally across the zone. Success was defined as finding every enemy unit and obstacle, not the timeliness with which you answered higher headquarters PIR. Screening (the only security task that a scout platoon could accomplish on its own) existed in a similar straitjacket of convention. Any student that had suggested dismounted pull of mounted scouts through one or two infiltration lanes, with sections attempting to penetrate the enemy security zone individually, distributed throughout the night, would probably have been laughed out of the classroom. Perhaps these TTPs are now taught as the approved solution, but that was not my experience when working with graduates through 1999. The key task in infiltration is too avoid contact with enemy security elements, not find and maintain contact with them. Scout elements must rapidly move through the security zone to the main defensive area and start collecting information on PIR, not waste time hunting down units specifically tasked to kill US reconnaissance forces. The logic of this becomes obvious after reading articles written by OPFOR reconnaissance commanders from the CTCs.[151] Every tactical solution depends on the

---

[151] CPT Richard S. Roubal, "OPFOR Brigade Recon Company Techniques…and How to Defeat Them", *Armor*, Jan-Feb 2001. The OPFOR brigade recon company at the CMTC has a mix of tracked and wheeled vehicles and dismounted elements, and has reduced infiltration of a security zone and defensive area into a science. It is a given that the company will have to employ indirect and direct fires to penetrate an alert security force, but they don't go looking for them, and will avoid them if they can.

exact circumstances of that problem, not cookie cutter solutions from an MTP checklist. SLC must impart this to graduates, rather than generic sweeps of terrain boxes.

The Cavalry Leaders Course is very similar to SLC in techniques and size, and also enjoys a good reputation in the Armor community.[152] The course is slightly shorter than the SLC and relies on written products, TEWTs, and simulations to confirm subject matter mastery. The average class has from twelve to 36 students in a small group setting, is restricted to Advanced Course graduates assigned to cavalry units, or warrant officers 3 or 4 and master sergeants in small numbers and in special cases. The course does not differentiate between heavy and light cavalry units, although the major of exercises and class time is devoted to heavy missions. A graduate completes three major exercises: a troop and squadron zone reconnaissance and screen, a light cavalry screen, and a squadron stationary guard. These tasks include instruction, tests, TEWTs, and simulation exercises over 110 hours of instruction time. As the Army continues to field more reconnaissance troops and squadrons the CLC must insure that it strikes the proper balance between light and heavy, reconnaissance and security scenarios. This is not a new problem; in May 1943 the Cavalry Advanced Course curriculum was altered to stress reconnaissance techniques at the expense of offensive and defensive tactics and command and staff procedures.[153] Perhaps the best solution is a sub-division of the course into light and heavy sections. Based on personal experience with heavy troop leaders, we still have some work to do eliminating generic solutions to all tactical reconnaissance and security problems. Leaders seem to be confused by a lack of tactical and operational context to the problems they are asked to solve.

Cavalry operations are not mentioned in other, more general courses. A lieutenant assigned to a cavalry squadron as a tank platoon leader may or may not attend SLC; if he doesn't, the Armor Basic Course will teach him nothing about how life is different in a troop versus a

---

[152] I have not attended this course, and cannot speak from personal knowledge.

company.[154] Generally, the wartime lieutenants of A Troop, 3-7 Cavalry gave the Officer Basic

Course low grades overall, citing a lack of tactical focus and preparation for the unique situation

the lieutenant would face in his next unit rather than a generic approach.[155] In 1996 the Armor

Advanced Course (now the career course) did not focus on employment of the battalion scout

platoon or interaction with the BRT, and it seems not to have changed much in this regard. An

officer moved from an armor job to a cavalry job at the same post is often on his own; units will

seldom pay to send an officer TDY to SLC or CLC after the fact. In 2002/2003, CGSC did not

offer electives on cavalry employment considerations; this subject was not covered in the

mandatory tactics class or heavy division elective, and was only briefly dealt with in the heavy

brigade/battalion S3 elective.[156] The resulting shortcomings are constantly noted by the task

force and brigade staff and reconnaissance element O/Cs at the CTCs. New battalion

commanders in the pre-command course (PCC) are given a few hours update on FM 3-90.2 (the

heavy battalion) as part of their branch specific training at Fort Knox. There is hardly time to go

into any real detail on reconnaissance operations; there are too many other, equally significant

changes to cover. Doubtlessly ISR planning is addressed throughout the PCC exercises, but this

does not ensure that even experienced battalion commanders truly understand the renaissance

occurring in light cavalry organizations. It is hard enough to train cavalry leaders before they

report to their assignment; keeping their superiors and employing staffs, or folks who have left

the community for a couple of years, up to date is almost impossible. The cavalry community

realized this in World War II, but their recommendations for a short mechanized cavalry

orientation for senior leaders and their staffs was vetoed by the Army Ground Forces; senior

---

[153] United States Army, *The Procurement and Training of Ground Combat Troops* (Washington, D.C.: Department of the Army, 1948, 269.
[154] 1LT Christian Wade, *et al*, 12.
[155] Ibid, 12.
[156] In this course my peers confirmed a lack of understanding of the complexities of employing a light reconnaissance platoon. They could all create a solid collection plan, but did not understand how to plan, resource, and control the task force battle for information dominance. Technical details on how to penetrate an opponents' security zone, sustain the scout platoon once inserted, and integration with the BRT effort and counter-reconnaissance elements was a bridge too far.

leaders were better served by learning in the field.[157] This attitude seems not to have changed much over the intervening sixty years.

Cavalry Training

As already shown with 2-4 Cav in the 24th ID in the years before Desert Storm (Appendix 2), cavalry units often sacrifice their training to support other units, typically serving as the opposing force. Disional squadron rotations to the NTC take place in a limbo state between attachment to a maneuver brigade and theoretical direction by the division.[158] Division Warfighter exercises, conducted yearly, provide a more realistic scenario for cavalry squadrons to operate in, and corps Warfighters occur about every two years, providing some focus for cavalry regiments. It is not uncommon for one of the regiments to support a division Warfighter or a mission rehearsal exercise, but this frequently revisits the problems encountered by a squadron at the NTC.[159] Around summer 1994 the NTC began to limit night operations, resulting in a drastic reduction in active counter-reconnaissance missions. The 3rd ACR NTC rotations in 1993, 1994, and 1995 came as something of a shock to cavalrymen raised by the SLC, 1990s doctrine, MTPs, and home station training. We came prepared to conduct long, grueling zone reconnaissance and screening missions, and instead conducted a series of breaches, movements to contact, and deliberate defenses.[160] Training for the independent cavalry troop in the National Guard separate heavy brigades always seemed to be an afterthought as we built annual training (AT) concepts. There was little to challenge the troop during counter reconnaissance periods, and the enemy security zone was insignificant if it existed at all. The end result was very little realistic training for the troop and wasted combat power for the brigade.

---

[157] *Procurement and Training*, 271.
[158] Benson, 10.
[159] In 1994 3rd ACR supported the 1st Cavalry Division warfighter as their third maneuver brigade. We occupied a strange middle ground between a corps level shaping force and a robust advanced guard for the division, and the exercise included only offensive operations.
[160] The rotation in 1995 was much better. Despite the lack of night counter-reconnaissance operations, our problem set moved more towards hasty attacks, movements to contact, and stationary guard missions.

Units don't seem to be receiving a good report card from the CTCs for their employment of reconnaissance forces and ISR planning and execution. Much of the blame is placed on battalion and brigade staffs for poor planning, but the more astute observers also notice something is wrong with platoon and troop training levels.[161] CPT Meyer cites a lack of planning focus by the brigade staff, no chief ISR planner or executor, bad, overly generic PIR, no understanding of the PIR, SIR, SOR linkage among recon leaders, and poor development of enemy courses of action and event templates.[162] Elements struggle to hand off reconnaissance targets through the depth of the battlefield by echelon, logistically support committed assets, and successfully infiltrate light scouts through an enemy security zone. Scouts pick observation posts that cannot adequately see into the Named Area of Interest (NAI) and fail to layer observation to assist with reconnaissance hand over. Integration between BRTs and battalion scout platoons is virtually non-existent. Brigade and battalion commanders cannot seem to get their PIRs answered in a timely enough fashion to influence the fight, and enemy reconnaissance is entirely too successful.

It seems that the correct training focus at the platoon and troop level is difficult to achieve. All cavalry is relevant only within the context of what its parent organization is trying to accomplish, so training without that unit is automatically difficult (but not impossible). Based on limited CTC experience and some of the historical research conducted for this monograph, there is little direct correlation between the basic skills and tasks emphasized at the platoon level and tactical mission success. Too often platoons train to pass the MTP or mirror the SLC experience, and not to recreate a worse case scenario they know they will face during a CTC rotation or in combat. It should not be necessary to ask scout leadership to ignore the MTP in order to focus on what is really important, but that is unfortunately the case today. Some battalions and brigades

---

[161] CPT David Meyer, "On a Wing and a Prayer", *Armor*, July-August 2003, 21-25. CPT Meyer was the BRT O/C at the NTC when he wrote this article. Also see the Scorpion 20 and Bronco 20 web pages on the NTC home page at www.irwin.army.mil/bronco/brigade_reconnaissance and www.irwin.army.mil/cobra/Scout%20Web%20Page .

are experienced and self-confident enough to exhibit this mature attitude, and some continue to conform to a more narrow vision of correct employment. New organizations that focus more leader attention on reconnaissance elements will help, along with improving doctrine, but as of 2002 it appears we still have a long way to go.[163]

Debating Our Vision of the Future

Understanding the educational and experience background of most "experts," Army professional publications are awash with ideas on how to fix the US cavalry. The solutions tend to fall into one of three major categories: new equipment and organizations, better planning and execution by already existing forces, and new concepts and doctrine to drive employment. In almost all cases, the authors rapidly reduce their problem set to the RSTA, heavy division cavalry squadron, or the ACRs. Historical examples hauled out to support these arguments seem to focus almost exclusively on the corps cavalry groups from World War Two rather than the armored division squadrons, infantry division troops, or infantry regiment I&R platoons from that war, or cavalry in other, more modern US conflicts. We seem to conveniently ignore the light infantry division cavalry squadron as an alternative cavalry model that has existed for years. FM 3-20.98 lists four flavors of reconnaissance platoons, not acknowledging the ground troop of the light infantry division's squadron with four platoons of five trucks.[164] These arguments also seem to completely ignore the fact that conventional maneuver units can (and do) perform security and economy of force missions at least as well as cavalry units under many circumstances.

---

[162] Meyer, 22-23.

[163] LCD Phase II reduces the heavy battalion headquarters company to a much more manageable size, allowing the commander to focus on training his platoons. With a BRT company commander in each heavy brigade, this captain can provide training focus and mentorship to the young scout platoon leaders in each battalion. With smaller battalions and brigades, field grade officers should have more time to mentor their subordinate leaders.

[164] *FM 3-20.98 Reconnaissance Platoon*, 1-2 to 1-6. The cavalry squadron in the four light infantry divisions consists of two aerial troops and a group troop. The ground troop contains four platoons, each with five HMMWVs. See John M. Stawasz, "Light Division Cavalry and Low Intensity Conflict Reconnaissance" (Leavenworth, KS: School of Advanced Military Studies, 1991) for the strengths and

Regardless, the real answer to the problem lies somewhere in a mix of all these ideas and concepts.

New Equipment and Organizations

It seems that the majority of solutions focus on this area. Everything would be all right if the Army would just buy the right equipment and field units with the perfect MTOE. Although much of our equipment has problems, and every unit could use a few more capabilities, solutions must go beyond these limitations. The current platform for scouts in BRTs, battalion platoons, and the ground troop in infantry divisions is the HMMWV. This platform suffers from deficiencies with optics, survivability, crew capacity and authorization, internal casualty evacuation capability, and self-protection lethality.[165] Under best-case circumstances, this is mitigated by the armored version (M1114) of the vehicle equipped with the LRAS3 sensor system. More comprehensive solutions to this problem range from the M113, the Recon Vehicle (RV) version of the Stryker, the LAV-25 Coyote employed by Marine reconnaissance units, the M3 Cavalry fighting vehicle, or some mix of the lot. Other authors claim that none of these platforms are adequate, and that the Army must continue to develop a suitable replacement for the scout crewman, either an interim Future Scout Combat System (joint venture with the British due for fielding in 2008) or the reconnaissance version of the Future Combat System.[166] Major Buhl, a project officer for the British-American scout vehicle program, points out that the M3 lacks stealth and that the RV Stryker is not much better and cannot employ its on-the-move sensors. Major Benson and SFC Belonus would employ a mix of HMMWVs, M2s, and M3s or LAV-25s and RV Strykers in each scout platoon to balance out some of these shortcomings.[167] SFC Belonus would also increase personnel in the platoon by one extra man per vehicle, and increase

weaknesses of this organization in a low intensity environment and integration of the cavalry squadron with division and corps Long Range Surveillance Detachments and MI assets.
[165] CPT Ryan Seageaves, "Transforming the Task Force Scout Platoon" *Armor*, March-April 2003, 40-42.
[166] Major Harold A. Buhl, Jr., "Future of Scout and Cavalry Systems", *Armor*, March-April 2003, 20-24.

the BRT platoon from six to eight vehicles, while permanently assigning Stinger missiles, a mechanic, and a medic. Analysis up to this point seems to suggest that the platoon is most effective with a mix of stealth platforms and local direct fire support systems, with heavier firepower available at a higher echelon (a penetration platoon at the troop or squadron level). This seems to be the case regardless the operational focus of the cavalry unit, either pure reconnaissance or trinity forces. More analysis will be offered below on the proper mix by echelon of reconnaissance.

A second major area of current discussion centers on the composition and equipping of the RSTA. It is perhaps pointless to engage in this debate if one has not personally resolved the reconnaissance over trinity question, but this does not stop most commentators. Too many experts want to turn the RSTA into a trinity cavalry unit, despite a clear decision to conceptually focus on reconnaissance. Thus Major Rago's solution to reconfigure the recce troop with two mobile gun platoons and two recce platoons, and to up gun the RV Stryker from a heavy machine gun or automatic grenade launcher to a turret mounted 25mm cannon.[168] Other researchers, better understanding the context and purpose of the RSTA, worry it does not have enough LNO teams, linguists, counter-intelligence assets, or reach back capability to the United States independent of intermediate headquarters.[169] This debate does not address the adequacy of the unit to conduct pure reconnaissance; it is too light for trinity missions on purpose, but can it penetrate an enemy screen without help from one of the infantry battalions or the brigade anti-tank company? If the answer is "no", is this necessarily a bad thing? We will return to this question in Chapter Five.

The search for the perfect platform(s) and organization is hardly complete. A recent briefing by the HQDA G3 to the House Armed Services Committee introduced a significant new

[167] Benson, 9. Belonus "Building on Force XXI Task Force and Brigade Recon Troop Scout Platoons", 7-9.
[168] Rago, 66.
[169] Major Yvette C. Hopkins, "Putting the RSTA O&O to the Test: Burma 2004" (Leavenworth, KS: School of Advanced Military Studies, 2001), 45.

twist to the debate.[170] Under this plan, RSTA squadrons remain the same, but heavy, armored

units of action equipped with legacy equipment will form an armored reconnaissance squadron.

The briefing provides few details, but each UA would contain two combined arms maneuver

battalions, a strike battalion, and the reconnaissance battalion. Battalions would retain scout

platoons (specific platforms and organization are not specified) and the squadron would have

three reconnaissance troops. The list of UA equipment implies mixed ground troops with

M1114s, Bradleys, and 120mm mortars, and additional intelligence and surveillance assets in a

MI company. This concept acknowledges the requirement for limited combat reconnaissance

assets at the heavy brigade level, while providing a mix of platforms to maximize the strengths of

each. Few details are available, and this is obviously a short-term solution for the legacy force

until the FCS is fielded, but it represents a significant new direction for brigade and below

reconnaissance.

Better Training, Planning, and Employment

The majority of professional writing focuses on this area for logic al reasons. Leaders in

the field cannot change equipment or organization in time to influence their mission success; they

are stuck trying to win with the tools currently available. The result is a string of articles in the

professional journals offering new ways to train, better training focus, and innovative TTP for

planning and executing ISR missions at the tactical level. Confronted by the reality of stealth

reconnaissance platforms at the battalion and brigade level, these authors have backed into

embracing reconnaissance as the core competency of cavalry and figuring out how to make it

work, at least outside the heavy squadron. Since cavalry units are not resourced to independently

penetrate enemy screen lines and survive in hostile territory, the battalion and brigade staff must

---

[170] HQDA G3, "Building Army Capabilities", 25 February 2004 power point briefing.

synchronize this effort to a level never expected in the past.[171] For years, doctrine did not address

the tension between assets and concepts, and professional journals were the only outlets for

explaining exactly how to enjoy recon success with a handful of scout trucks and dismounts.

BRTs were fielded to the brigades with no governing doctrine, and units have struggled to

integrate brigade and battalion level scout elements into the ISR and security missions with no

applicable approved solution.[172] Short a major overhaul in organization, informal cooperation

between the staffs and reconnaissance leaders within the brigade is the only outlet to solve these

real world problems. These subject matter experts then turn around and write detailed "how to"

instructions that ignore any concerns over doctrinal niceties and larger conceptual frameworks.

They have a job to do and they have figured out what does and does not work in a harsh and

threatening environment. This knowledge is typically learned through experience, lost with

rotation to new units and assignments, and rarely passed through formal education and schools.

Isolated leaders and units have embraced their core competencies and figured out how to execute

them, but we as an organization cannot seem to institutionalize this excellence.

New Concepts and Doctrine

The fielding of the RSTA represents formal acceptance of a process that has been

occurring since 1991. The Army has been forced to acknowledge two types of cavalry,

reconnaissance and trinity, that both have applicability on the modern battlefield. Future

concepts are beginning to challenge heavy, trinity cavalry, but we are slowly coming to grips with

the reality of light cavalry. The RSTA does not conduct decisive operations on its own, but

shapes and enables decisive maneuver by the Stryker Brigade. Battalion and brigade scouts

cannot fight for reconnaissance alone, but require reinforcement from external assets or

---

[171] Kevin L. Jacobi, Battle Command to ISR Planning", *Armor*, Sep-Oct 2002, 22-25 provides an excellent example of how new battle command doctrine impacts on ISR planning at the brigade and battalion, and offers a number of concrete steps and processes that will contribute to greater success.

synchronization by higher-level staffs to succeed. They are only the early warning tripwire in security operations, and have no ability to conduct conventional economy of force missions. It has been this way at the brigade level and below for over a dozen years; we are just waking up to the fact. Discussions about eliminating a level of headquarters between brigade and corps further threatens the Army traditional vision of cavalry. If the division goes away, what service does the trinity heavy squadron provide? What does a future coalition ground force commander really want from his combined arms cavalry element? What information must it provide to drive non-linear, non-contiguous ground operations at the corps level with few operational pauses envisioned? In a world full of SBCTs, Units of Action, and Units of Employment, is the current heavy squadron and regiment really the best organization to meet these requirements?

In 2002, COL Kevin Benson envisioned the 2nd ACR reequipped and reorganized as a sort of super-SBCT, with similar capabilities and operational context, but with even greater independence and footprint.[173] This rapidly deployable regiment would be capable of independent, strategic level economy of force missions for the nation, coving up to a 100 x 100 kilometer box, and buying time for conflict resolution in other theaters prior to shifting effort to the new region. This solution combined equipment, organization, and a bold new employment concept rather than maximizing the trinity regiment with new technology. Troops would reconfigure to contain mixed reconnaissance and direct fire platform platoons, both ground squadrons would gain a dragoon troop capable of dismounted light infantry operations, and the aviation squadron would shrink to three reconnaissance troops and a lift troop. This lighter, smaller regiment would be deployable by approximately 180 C17/C5 sorties while still providing its own combined arms and sustainment assets and providing a capability distinct from the

---

[172] LTC Bart Howard and CPT Jeff Ramsey "Employing the BRT", *Armor*, Mar-Apr 2002, 17-21. This article discusses the TTPs worked out in the course of a five month deployment to Kuwait as part of Operation Intrinsic Action.
[173] COL Kevin C.M. Benson, "Cavalry for the Interim Force", Armor, Jan-Feb 2002, 15-17.

SBCT.[174] This concept is radical because it divorces the regiment from a corps main body focus, or at least adds strategic economy of force to the corps trinity mission.

What is conspicuous by its absence is any discussion of modifying the heavy division squadron or heavy regiment; leading one to the conclusion that we obviously have these formations perfect and they need no work. Reading the trinity school's arguments for specialization, it is surprising there is no call to form squadrons with a security troop, reconnaissance troop, and economy of force troop. No one is suggesting a light reconnaissance element in the squadron or regiment, much less questioning the heavy combat focus of these Cold War dinosaurs. What does the squadron or regiment provide a division or corps that a specially built task force or brigade could not? Habitual task organization relationships and assigned METLs would reduce most counter-arguments to rubble. I suggest any specially equipped and focused task force could have performed the 2-4/3-7 Cav missions in Desert Storm and Operation Iraqi Freedom. They did not provide information dominance to drive division maneuver, rather they acted as a division advanced guard and forward detachment, missions any heavy task force can perform. The aftermath of OIF has seen an accelerated movement towards combined arms, brigade-sized units of action and questioning of the relevance of division headquarters. What does the division cavalry squadron look like in this brave new world, and what is its special role in the land component fight? Perhaps more specifically, is there a cavalry force above the RSTA, who does it work for, what does it look like, and what unique capability does it provide? Is there a place for operational cavalry in support of the modern corps, or is it a purely tactical force enabling brigade maneuver? Cavalry visionaries need to stop defending the heavy squadron and regiment and attacking the RSTA, and start considering the answers to these questions if they want to be relevant within the next five years. COL Benson has started to explore possible answers, but that is not enough.

---

[174] Ibid, 17.

Whatever answers the Army comes up with, it must take into account our immediate vision of the future threat environment. Major Rago correctly points out that the emergence of a peer competitor would change everything described in the current transformation literature, but that is a risk that the Department of Defense is comfortable taking as they contemplate the world in 2020.[175] Future visions of cavalry must also understand that America will need to deploy over great distances to arrive at the conflict, and that mobility is relative. Tactical mobility includes the ability to overcome local terrain and sufficient armored protection to penetrate enemy defenses; it implies that tracked combat vehicles have distinct advantages. But operational mobility requires great range and speed, small logistics requirements, and suggests wheeled and aerial platforms. Finally, strategic mobility demands units and platforms deployable (and sustainable) by air and sea, with the ability to self deploy and transition directly from garrison activities in the United States to combat desirable, but not necessary. This problem suggests aerial platforms, satellites, emission collectors, cyber stalkers, and small covert human teams (CIA/SOF). Future cavalry must move beyond ISR, security, and economy of force, and consider intelligence fusion at the tactical and operational, and perhaps the strategic, level.

There are numerous recommendations for change in the cavalry community, but few seem to take a systematic approach to the problem. Most authors do not clearly understand exactly what cavalry must accomplish on the modern battlefield, and have a mistaken understanding of exactly what their organizations are about and where they came from. Few thinkers have embraced the implications of transformation and redefined cavalry within this context. Most intellectual effort is expended hunting for the perfect platform, organization, or most effective employment techniques. People best equipped to explore this new territory seem to prefer defending legacy heavy cavalry formations, or a generic formation to solve all problems. The final solution will be more complex, and must incorporate different formations by echelon and anticipated operational context, while transitioning to a reconnaissance focus and jettisoning

---

[175] Major Louis Rago, 48.

security and economy of force to some unidentified replacement. It will involve a closer relationship with MI and signal units, and embrace both conventional and non-conventional threats. If cavalry is to survive at higher echelons as a trinity force, it will be performing missions similar to those foreseen by COL Benson, performing as an operational or strategic economy of force element until the regional commander or nation can shift focus to that region.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Effective Reconnaissance Seems to Require Organic Combat Power

Commanders are presented with a dilemma: it seems necessary to fight to conduct effective tactical reconnaissance. As a bare minimum, reconnaissance elements must be capable of penetrating an opposing counter-reconnaissance screen line, preferably with organic combat power. Due to the nature of stealth-based infiltration, these break-in battles are likely to occur in rough terrain against enemy elements light enough to get there. Sixty-ton tanks can seldom get into position to block the natural line of approach through a swamp. Reconnaissance elements need just enough firepower to fight past similarly equipped screening forces blocking infiltration lanes into the enemy main area. If the commander should decide to employ aggressive reconnaissance along major mounted avenues of approach (due to time or terrain restrictions), a heavy team or task force can accomplish this better than a specialized reconnaissance force; we do this all the time, and it is called a movement to contact.

In addition to penetrating a screen line, reconnaissance forces need sufficient protection and suppressive firepower to survive and escape from ambushes in the enemy main battle area or rear, or among a civilian population that contains friends, enemies, and neutral factions. Often the only way to discover a hostile force is by driving close enough to "spook" them, draw their fire, and then hope to escape to send a report. This is another version of fighting for reconnaissance. Sufficient combat power to launch a successful raid or ambush against a relatively soft target, for the purpose of degrading command and control or logistics support, or capturing prisoners, also seems to be a historical necessity.

Unfortunately, the reconnaissance element strong enough to fight for effective information is often strong enough to be assigned other combat missions. Experience suggests

that the only way to fix this problem is to purposely build stealthy recon forces that are supported by external combat forces when necessary, with a minimal amount of organic combat power. Armor battalions conduct combat reconnaissance with a platoon of tanks when time or enemy counter-recon screens preclude success by the wheeled scout platoon. If you give the BRT tanks, the next thing you know, the troop is leading the brigade movement to contact out in the open at thirty kilometers an hour.

The US Army seems to have reversed the natural distribution of cavalry assets, with heavy forces at division and corps level, and light forces for the brigade and battalion. Based on General Guderian's theories and Soviet practice from the Cold War, combat reconnaissance is the realm of tracked, combat vehicles, while tactical and operation reconnaissance is the realm of wheeled stealth vehicles, sensors, and aerial platforms. Currently our battalions and brigades are equipped with mostly fiberglass armored four-wheeled drive vehicles with a machine gun, poor night vision devices, and perhaps radar or a network feed. Our divisions and corps are equipped exclusively with heavy, combat vehicles with excellent firepower, protection, tactical mobility and combined arms organizations with a large range of capabilities. These organizations are also hard to deploy overseas, difficult to sustain over time and distance, virtually impossible to hide, and poorly equipped with people and sensors to gather anything other than combat intelligence. Obviously the RSTA squadron in the Stryker brigades and the 2nd Armored Cavalry Regiment are exceptions to these generalizations. Based on the insight provided during the research of this monograph, I suggest we need to return to M3 Cavalry Fighting Vehicles or LAV-25 Coyotes in the heavy battalion, a mix of light wheels (M1114) and medium wheels (LAV-25 Coyote and RV Stryker mix) in the heavy brigade troop, and proceed with a RSTA model in the division and cavalry regiments for reasons that will be explained below. The lower the tactical level of reconnaissance, the more armor and firepower necessary, but even the division and corps assets need enough combat power to penetrate a screen and survive an ambush. This equates to a direct

fire weapon at the section or platoon level that can destroy a BMP/BFV equivalent, and armor that can withstand a heavy machine gun and RPG.

Heavy Cavalry Is Not Very Good at Reconnaissance

My personal experience in the 3rd Armored Cavalry Regiment (ACR) from 1992 to 1995 suggests heavy cavalry organizations have major problems with reconnaissance, problems that span the range from equipment, unit structure, and training. We were not allowed to employ aviation or tracked recon during the early stages of the mission preparation at the National Training Center, although there was no similar prohibition against dismounted or wheeled reconnaissance.[176] This problem was significant enough to drive the regimental commander, COL Robert Young, to create an organic motorized scout platoon immediately after our rotation in September 1994.[177] This was a ten HMMWV, thirty man light platoon organized and employed in accordance with the principles governing battalion scout platoons on a much larger scale, and with internal aviation support available. The squadrons also learned to create internal lighter scout elements. During our NTC rotation in 1993, I dismounted all the scouts from the back of my Bradleys, mounted them on the commander's and first sergeant's HMMWVs, and attempted to conduct stealth reconnaissance against an enemy prepared defense, something we had never trained back at Fort Bliss. 1st Squadron executed similar operations with unemployed scouts removed from the UMCP, creating an ad hoc motorized scout platoon for squadron employment. The regiment also trained to consolidate all the dismounted scouts from a troop or squadron for aerial insertion to observation posts deep into neutral or enemy territory, and to conduct raids against critical command and control and logistics nodes. Because the motorized

---

[176] The purpose of this restriction, and its shelf life beyond 1995 are unknown to me. It was always a written restriction included in the reconnaissance guidance from the notional division headquarters in charge of the brigade training at the NTC. Safety concerns, night vision system superiority over the OPFOR, and discouraging the irresponsible employment of combat elements all probably played their part, but it was a restriction particularly onerous to the 3rd ACR, which had no organic authorized reconnaissance elements.

scout assets were not MTOE authorized, they tended to disappear just as quickly as they were created.

Doctrinal limitations do not survive the harsh light of the Combat Training Centers. Information on the enemy is one of the keys to success, and battalion and brigade commanders insist that their reconnaissance force leaders overcome the limitations of doctrine and training. Just as the American soldier always has, he overcomes poor preparation, figures it out, and gets the job done. That is what makes this entire issue so frustrating; we have discovered the solution (over and over), but these solutions cannot seem to break into the doctrine and school system. Successful TTPs are recorded in Armor Magazine, the Center for Army Lesson Learned (CALL) newsletters, and the collective mind of experienced cavalry leaders and Observer Controllers (O/Cs). The general employment of brigade and division recon by the OPFOR at NTC or CMTC are great places to start. Light units, supported by various combat multipliers, infiltrate by the best means possible (dismounted, aerial, wheeled, tracked) to establish observation posts (OPs) or conduct detailed patrols to gain information superiority at carefully chosen NAIs linked to PIRs and confirm or deny enemy courses of action, always cognizant of the time-value linkage of this information. Included in this task is a holistic plan by the battalion or brigade of how they intend to assist in this successful infiltration, logistically support these forward elements, relay FM traffic, rescue or recover these valuable and exposed assets, and divide the intelligence requirements so that each system contributes with its strengths while not exposing its weaknesses. It seems that we fail, and blame our failure on the technology or equipment, rather than examining the intelligence gathering system at the tactical level and fixing the easily identified problems.

This clearly observable phenomenon drives a natural concern within our Army over our ability to gain tactical information dominance with non-technologically centered tools. ISR is a

---

[177] Both to overcome the NTC Ops Group restriction on earliest departure time for tracked reconnaissance assets, and to fill a capabilities hole in the regiment for deep, stealth based, dismount- focused patrols.

critical component of Joint Vision 2020; it is the first successful step required for the rapid decisive victory model. For years the cavalry community has claimed a monopoly on reconnaissance as part of its three core competencies, and then done a mediocre job (at best) fulfilling the requirement. Cavalry has to get better at reconnaissance if we want to protect this skill set from encroachment by Military Intelligence, Aviation, and Signal Corps community, who continue to propose new technologies and organizations that can do a better job than any of our versions of reconnaissance forces unless we embrace a changing philosophy.

Reconnaissance is the Only Justifiable Core Competency of Cavalry

Many cavalrymen may read this monograph and decide that someone else can do tactical reconnaissance better; let them have it. Yet this organizational decision would be very dangerous. Even if we don't come to this collective decision, continued half-hearted efforts to improve reconnaissance will have the same result; ISR is too important in our future vision of American war to countenance continued mediocrity. The mission will be given to the first branch that demonstrates they can do better. This is dangerous because the other two core competencies of cavalry are built on shaky ground. Historical and current trends demonstrate that any combined arms combat team can provide security for a main body; that was the cornerstone of German anti-tank gun doctrine in World War II, and Soviet military doctrine through 1991. Any modern, relatively mobile, radio equipped (not to mention FBCB2 equipped system) organization can disperse over a large footprint (width and depth, and with the right attachments, height), identify approaching enemy forces, direct indirect precision strikes, mass effects, and buy time for the main body to maneuver or avoid the enemy blow. This scenario reads like the advertising pitch for the new Stryker Brigades, and is imbedded in the justification for reducing line heavy battalions from four to three companies. The Soviets never had heavy cavalry forces, but light to medium reconnaissance forces with occasional heavy enablers attached, robust anti-tank and combined arms reserves, and independent motorized rifle brigades and air assault battalions to

function as operational maneuver groups, the equivalent of our heavy cavalry regiments. Advanced guards, flank and rear security elements, and forward detachments were build around a core of standard rifle and tank formations with various attachments. Due to the 1917 revolution, which cut virtually all emotional ties to the past, Soviet cavalry in the mechanized age had no special economy of force, reserve, or security fiat. Detached from emotional arguments, the same can be said within the US Army in 2004. This leaves only reconnaissance as a mission requiring special equipment, training, and organization that only the cavalry branch can handle. Heavy units can conduct combat, or battle, reconnaissance, but a tank or mechanized infantry company or battalion cannot hope to compete with a RSTA squadron, or even a brigade reconnaissance troop, in providing decision quality intelligence to the operational commander. It is the job we are uniquely qualified to accomplish, but only if we embrace the task, focus on it, and get serious about making it work.

We Continue to Need Security Forces, And Effective Counter Reconnaissance Requires A Mix of Heavy and Light Elements

In US doctrine security missions come in five flavors: screen, guard, cover, area security, and local security; counter-reconnaissance is a tactical mission tasks and a component of all security operations.[178] Counter-reconnaissance is defined by FM 3-90 as "all measures taken by a commander to counter enemy reconnaissance and surveillance efforts." Screen has recently been radically redefined as "a form of security operations that primarily provides early warning to the protected force" from an older definition closer to the current counter-reconnaissance task.[179] Guard is defined as "protect the main body by fighting to gain time while also observing and reporting information and preventing the enemy from ground observation of and direct fire against the main body" and implies that the guard force must relay upon indirect and combat

---

[178] United States Army, *FM 3-90, Tactics* (Washington, D.C.: Department of the Army, 2001), 12-1, G8.
[179] Ibid, G-24.

support assets from the main body.[180] If you find these definitions and their distinction confusing, you are not alone.

At the heart of this discussion is the issue of security specialization. In the past cavalry tried to conduct both security and reconnaissance. Recently the US has decided that reconnaissance is the primary task of scouts, at least at the brigade level and below, and handed the security task over to maneuver forces. Was this a mistake, or do we need a special security organization within the brigade separate from the BRT and scout platoon, or just need to provide some additional assets to the heavy team? The SBCT has an independent anti-tank company of Mobile Gun Systems to serve as a reserve and security force. Perhaps the heavy brigade needs a similar organization.

The best security element against a large, mechanized threat is a similar type force. There is probably no better organization for this role than the division cavalry squadron or armored cavalry regiment, as long as the terrain and ROE do not restrict their operations; perhaps some light infantry would be nice in complex terrain. But if you face an irregular threat seeking sanctuary among the general population, or light reconnaissance forces, the heavy cavalry will struggle. Tanks and Bradleys often cannot get to the most likely infiltration lanes, helicopters cannot see through trees and buildings, sensors cannot determine intent or distinguish between

Above I argued that the traditional core competency of security should be removed from the cavalry plate. Obviously, against an irregular or light opponent, current cavalry forces can accomplish all security tasks short of cover. Against a heavy, more conventional opponent, they can still provide local and area security, screen, and perhaps guard against enemy reconnaissance forces, even with the limited combat power in the current battalion scout platoon or BRT. But how much training time should be spent on the issue? Should changes to organization and equipment be made? What happens if the main body requires a security element against a large, heavy force?

---
[180] Ibid, G-14.

support assets from the main body.[180] If you find these definitions and their distinction confusing, you are not alone.

Above I argued that the traditional core competency of security should be removed from the cavalry plate. Obviously, against an irregular or light opponent, current cavalry forces can accomplish all security tasks short of cover. Against a heavy, more conventional opponent, they can still provide local and area security, screen, and perhaps guard against enemy reconnaissance forces, even with the limited combat power in the current battalion scout platoon or BRT. But how much training time should be spent on the issue? Should changes to organization and equipment be made? What happens if the main body requires a security element against a large, heavy force?

At the heart of this discussion is the issue of security specialization. In the past cavalry tried to conduct both security and reconnaissance. Recently the US has decided that reconnaissance is the primary task of scouts, at least at the brigade level and below, and handed the security task over to maneuver forces. Was this a mistake, or do we need a special security organization within the brigade separate from the BRT and scout platoon, or just need to provide some additional assets to the heavy team? The SBCT has an independent anti-tank company of Mobile Gun Systems to serve as a reserve and security force. Perhaps the heavy brigade needs a similar organization.

The best security element against a large, mechanized threat is a similar type force. There is probably no better organization for this role than the division cavalry squadron or armored cavalry regiment, as long as the terrain and ROE do not restrict their operations; perhaps some light infantry would be nice in complex terrain. But if you face an irregular threat seeking sanctuary among the general population, or light reconnaissance forces, the heavy cavalry will struggle. Tanks and Bradleys often cannot get to the most likely infiltration lanes, helicopters cannot see through trees and buildings, sensors cannot determine intent or distinguish between

---
[180] Ibid, G-14.

civilian and terrorist, and there are not enough dismounts to make up the difference. Heavy forces would require augmentation by a light reconnaissance focused force to find most of the infiltrators, who could then destroy the enemy on their own, or vector in killers from the heavier security force. From personal experience, once you find a unit relying on stealth for mission accomplishment, you need to kill it right then; the process is too hard to count on doing it a second time. By its very nature, the team or vehicle is probably small, light, quiet, and lightly armored at best. None of these systems could survive a heavy machine gun or Javelin missile. Heavier forces out in more open terrain can be left to US tanks, Bradleys, and helicopters, or precision indirect fires.

For all the reasons above, effective counter-reconnaissance at the tactical level against stealth based systems require similar capabilities backed up with immediate firepower. These assets must be capable of getting sensors (to include eyeballs) on infiltration routes through nasty terrain, differentiating between civilian and hostile guerrilla or regular, and destroying them before they slip away. Since this set of capabilities closely resembles those necessary for successful infiltration based reconnaissance, light cavalry as it is currently configured can perform them. Heavier maneuver forces can handle aggressive reconnaissance forces out in the open. We either need to provide heavy security organizations lighter assets as described above, or dual employ our reconnaissance to hand over, and destroy when necessary, the light enemy threat.

The problem is it is often difficult to do both. Scouts engaging enemy scouts suffer attrition, compromise their hiding spots, are not focusing on the enemy main body for the maneuver commander, and never get an operational pause to reset for future offensive operations. Light reconnaissance cavalry can be very effective in certain types of counter-reconnaissance, but do we want to employ these specialized assets that way? In the end, anything that interferes with the reconnaissance focus is a bad thing, and dual tasking the reconnaissance element is a mistake. Normal maneuver units can handle guard and cover security, and various existing combat support

elements are adequate for area and rear security. But in order to conduct effective counter-reconnaissance against stealth-based systems, the heavy force requires similar augmentation. Dismounted infantry from Bradleys is part of the solution, but a battalion counter-reconnaissance platoon mounted in wheeled vehicles with a 25mm cannon and a handful of anti-armor missiles and a healthy dismounted team per section would be a key attachment for the designated security company, allowing them to focus on mounted/main body avenues of approach and allowing the battalion scout platoon to focus on reconnaissance. The same logic can be applied at the brigade, division, and corps echelon, with a mix of heavy/light security forces at each level.

Light Cavalry Must be Divorced From the Armor Community

The birth of the US Armored Force complicated efficient division of core competencies between armor and cavalry in the 1940s. Eventually most European armies conceptually passed the heavy cavalry role to the armor force while retaining the light cavalry role in a reconnaissance branch, a process often eased by the creation of an anti-tank or tank destroyer branch to assist with the security mission. This workable solution never took root in the American army, and as we have seen, by the mid-50s US cavalry had worked itself back into some heavy cavalry roles. This process was accelerated with the merging of Armor and Cavalry Branch in the 50s, with Armor obtaining supremacy. Now officers do not pick between heavy, combat focused armor branch, or stealth reconnaissance focused cavalry branch, but the generic Armor Branch. Unit or location of assignment, and jobs within that assignment determine which skill set the officer will be asked to master. Cavalry used to be seen as an elite within the armor community; more of the same, only better, rather than a distinctly different organization with separate goals and skills necessary for success. If anything, cavalry is defined by its independence, skillful integration of combined arms, and dispersion over great distances. Our doctrine refuses to part with the complete range of heavy missions as possible cavalry capabilities (and based on our World War II experience this is correct, there we were expected to accomplish all these tasks and more) and

84

this often drives how we think about core competencies and maximizing our training, equipment, and organizations. Most armor officers selected the branch to fight the enemy in direct fire combat, not sneak around gathering information. A large number of new officers would volunteer for this option, but it is unfair and unrealistic to ask the armor advocates to embrace this role exclusively while surrendering the combat aspects of their job. If we expect real progress in the effectiveness of cavalry reconnaissance capability, we will have to divorce the two communities and create a real cavalry branch again, one focused primarily on long range, stealth reconnaissance and very little combat, a sort of officer diametrically opposed to the normal armor officer and the traditional US vision of heavy cavalry.

When we employ reconnaissance efforts today, it is a team effort, at every tactical level. Battalion scout platoon leaders integrate GSR attachments from the MI battalion, ADA scouts from the ADA battalion, COLTs from the artillery battalion, and engineers from the attached engineer company. They very well may escort smoke generators into position and travel with Fox NBC recon vehicles, and integrate with special operations forces (SOF) operating to their front or even in the same area of operation. Diverse information is received from similar multi-function intelligence teams operating at higher echelons. The reconnaissance focused cavalry team already exists, we just need to integrate them with relevant doctrine and organizations that make a clean break from the 1950s paradigm.

Is Cyber Cavalry The Next Step?

If the RSTA squadron and Joint Vision 2020 suggest the cavalry organization of today and tomorrow, what is the vision for cavalry of the future? If information is the raw material of decisive maneuver and an element of combat power, who is the information executor at the tactical level? Current doctrine and organization provide maneuver commanders from brigade to corps at least two answers: a cavalry element and a Military Intelligence component. The RSTA merges many of the same functions in one organization, but the SBCT still has a MI company in

support of brigade operations. Truly forward-looking cavalry will embrace a comprehensive

fusion of all information gathering and employment functions. Cavalry leaders of the Twenty-

First Century will employ Knowledge War at the tactical level, merging reconnaissance, sensor

based surveillance, computer network operations, and information operations to influence

friendly, neutral, and enemy opinion. Cavalry units will be composed of aggressive and stealth

based reconnaissance, MI, signal, computer, public affairs, civil affairs, and psychological

warfare officers, experts, soldiers, and components. These forces will gain information

dominance by maximizing friendly knowledge and minimizing enemy knowledge to drive

decisive maneuver while shaping the operational and strategic context of the struggle. Before we

invent the G7 at division level and above, perhaps cavalry should embrace this logical extension

of reconnaissance and knowledge warfare.[181]

Recommendations

Despite the observations and conclusions from this monograph, there is still much to

learn about modern cavalry employment from battalion to corps level. Fort Knox must direct

detailed, focused study to properly identify the tactical challenges faced on the ground from

Desert Storm to Operation Iraqi Freedom. Inherent to this study is acknowledgement of the

difference between heavy and light cavalry, and conventional and non-conventional struggle.

This study must drive a rewrite of the relevant doctrine to capture true expectations, challenges,

and the TTP that works to overcome them. MTTs and Armor magazine must get this information

our to field units, and various schools must rapidly update their curriculum to emphasize and

validate these ideas. What we ask cavalry units to do at the CTCs and during Warfighters must

---

[181] Knowledge warfare in this context is an idea generated by BG (R) Wayne Michael Hall's *Stray Voltage: War In the Information Age* (Annapolis, MD: Naval Institute Press, 2003). In his book, knowledge war is waged primarily at the strategic level between coalitions of convenience among terrorists, criminals, nation states, corporations, and others, and the United States. The main battleground is the international media, world wide web, and international communications nets, where American will is targeted primarily by terrorists acts and economic sabotage. My idea of cyber cavalry envisions a unit specifically built to win in

mirror what is going on in the field. To make the problem even more exciting, these changes need to happen almost immediately; we do not have years to figure this out.

While one group struggles to come to grips with and institutionalize the present reality, a second group must focus on the tactical and operational future, both short term and longer term. As the first study group completes its findings, Armor Branch can devise a plan to reconfigure reconnaissance elements at the battalion and brigade level with assets immediately at hand. We must also fully explore the theoretical documents guiding transformation, understand the implications for cavalry forces, and begin to develop the organizations and equipment requirements for operation in that environment. Deep thinkers have to decide now what the future UEx and UEy cavalry or reconnaissance organization looks like, and the form that reconnaissance elements of the UA will take. This process must again cover the range from battalion scouts, light infantry UAs, and a heavy or light centric UEy across the range of conflict.

Within the next five years (or less) the heavy squadron and regiment are at risk. We must recommend their transition to a more relevant force, or offer them for conversion to UAs, Stryker Brigades, or early conversion to FCS units. They could also form the framework for specialize security units within their current maneuver branches. Just as light cavalry is embracing reconnaissance, perhaps current heavy cavalry needs to transition to medium platforms and embrace the security mission.

A new Reconnaissance Branch must be established separate from Armor branch. Currently 19Ds and 12 series officers can serve in a wide range of units, from light reconnaissance troops in light infantry divisions all the way up to heavy squadrons in the 3rd Armored Cavalry Regiment. Most current Armor officers joined to lead warriors and win direct fire combat, not manage recon sensors and platforms. If this is what we are going to ask the

---

this environment merged with conventional and unconventional warfare at the tactical and operational level.

future recon leader to do, we need to make that the job description clear up front, and then resource specialization and excellence.

Finally, the Army has to sell its new vision of reconnaissance focus among the cavalry community. It has to articulate why this doctrine makes sense within the operational and strategic context, explain why the security and economy of force roles can be handed over to the traditional combat arms, and offer incentives for soldiers to become part of this new branch. The final version of cavalry must include MI, Signal, Civil Affairs, Public Affairs Officers, and new reconnaissance experts that understand Information Operations and the necessity to gain information dominance at the tactical, operational, and strategic level. Any cavalry leader not interested in this specialty deserves the opportunity to return to the Armor or Infantry mainstream. Again, the Army has to move quickly and acknowledge a shift that has been occurring for years, and do a better job convincing its most loyal and engaged cavalrymen.

APPENDIX A – ADDITIONAL FOREIGN CASE STUDIES

French Cavalry Experience in May 1940

The experience of the French cavalry around Sedan in May 1940 provides a number of insights to the linkages between doctrine, operations, force structure, training, and eventually tactical success or failure. French cavalry operated within a nested doctrinal and operational framework, had been specifically trained and equipped to face a known mission, and failed disastrously to perform in the test of combat. What went wrong?

Just like every country in Europe, France struggled to integrate her World War I experience and resultant doctrine with the increased importance of machines and motors to armies in the 1930s. France's war plan by the mid-30s, in the event of a war with Germany, was to rush into Belgium and occupy a defensive line alongside her northern allies.[182] This necessitated motor transport for a few of her infantry divisions, despite the realization of how vulnerable these forces would be in transit. A logical solution was to mechanize a number of cavalry formations to keep ahead of these motorized infantry divisions, protecting them from surprise attack while the infantrymen were stowed away in trucks and guns trundled for towed movement. It was a natural extension of the traditional cavalry mission of moving before the main body providing information on enemy forces and local terrain, and preventing enemy reconnaissance forces from doing the same. Major enemy formations intent on launching a spoiling attack would be caught in this web and delayed and attrited just long enough for the infantry and artillery to deploy for combat. It was a short leap from local security of motorized infantry divisions to a deeper lunge to the German-Belgian border with independent combat in a security zone to buy further time for the infantry approach march and preparation of defensive positions.

---

[182] Robert Doughty, *Seeds of Disaster* (Hamden, CN: Archon Books, 1985), 68.

To accomplish these clearly defined tasks, significant modifications were made to the equipment and organization of the French cavalry forces. Motorization and mechanization would occur, but slowly, and not all horses were eliminated. France persisted in the belief (also shared by the United States but not Germany) that within certain units a mix of motorized and horse mounted units provided the best of both worlds when it came to mobility. At each major component level, and for each significant mission, a different cavalry organization was judged optimal. Light mechanized divisions (DLM) were developed by the French cavalry branch between 1935 and 1939 and were eventually very similar to German panzer divisions in organization and capability. Envisioned as a traditional cavalry force by the Chief of Cavalry, General Flavigny, doctrine stressed their use in movements to contact, to seal ruptures in a defensive front (usually with a limited attack into the flank of the penetration), lead pursuit and exploitation, and spearhead deliberate attacks under very specific and controlled conditions.

In addition to the DLM, French cavalry forces were also fielded in mixed divisions and mounted brigades at the army level, and in mounted troops and squadrons at the division and corps level. The cavalry division included a horse brigade, armored vehicle and motorized infantry brigade (with armored cars and light tanks), an artillery regiment, and two anti-tank batteries totaling 10,000 men and 2,200 horses.[183] Both the Second and Ninth French Armies were each assigned two cavalry divisions and a separate mounted brigade (with two regiments), and the mounted divisional squadrons were sent into the security zone under cavalry control.[184]

Second Army sent forward two additional infantry battalions and a tank battalion to serve as the security zone reserve and to strengthen the intended final holding line.[185] Second Army sent its three cavalry formations east across the Meuse under direct army control (there was no intermediate security zone command between the three cavalry leaders and General Huntziger) with a number of missions, control measures, and a clearly articulated purpose. The cavalry

---

[183] Robert Doughty, *The Breaking Point* (Hamden, CN: Archon Books, 1990), 80.
[184] Ibid, 80.

covering force was to rapidly advance to the Belgian-German border and delay back through a series of five phase lines, solidifying on the Semois River. They were to determine the axis of advance of the enemy main effort through the Ardennes, link up with and coordinate actions with the Belgian cavalry, and delay and attrit the German forces to allow Second Army additional time to construct fortifications and Ninth Army to reach and dig in on the Meuse from its starting positions on the French frontier.[186] The French high command anticipated the cavalry buying at least five days, and hopefully ten, before any significant German forces arrived on the Meuse.

The French cavalry raced east on the morning of 10 May, with each division employing a distant security element, advanced guard, and main body formation; the distant security element had a one hour head start on the advanced guard, and the advanced guard a two hour lead on the main body.[187] Around noon the French 2nd Cavalry Division made contact with Germans from Guderian's XIX Panzer Corps east of Etalle, and a screen line consisting of a motorcycle troop backed up by a machine gun armed tank troop and motorized infantry troop were quickly overrun and thrown back on the main body west of the town. Each cavalry formation was attempting to secure a large sector in depth, with a brigade echeloned along each division avenue of approach.[188] German pressure seemed constant across the entire army sector, and due to their similar mobility relative to the cavalry, the French struggled to make timely local counter-attacks or cover the withdraw of engaged forces. This trend continued and worsened the next day, which saw repeated flank attacks from German motorized units constantly threatening to encircle French cavalry forces and cut off their withdrawal routes to the west. As the tempo of the withdrawal accelerated, control deteriorated, and with it, French morale. Slower elements of the French divisions were separated from the faster units, driven off the few roads through the rough terrain,

---

[185] Ibid, 81.
[186] Ibid, 80, 82.
[187] Ibid, 83.
[188] Ibid, 84.

and abandoned to their fate east of the final hold line, the Semois River.[189] By the evening of the 11th, the French cavalry was in complete disarray, and only the two infantry battalions securing the key crossing sites of the Semois allowed most of the three units to escape. Limited counter-attacks were necessary to allow the withdrawal of units trapped on the east bank, and on the morning of the 12th, German forces jumped the Semois and threatened the entire position with encirclement. As the French cavalry cut and ran the dozen kilometers to Sedan, the two infantry battalions that had saved their neck the day before were sacrificed to the Germans, victims of their lack of mobility and lack of sense of camaraderie with the cavalry units to which they had been attached only a few days before. By evening on 12 May all three cavalry units were west of the Meuse in army reserve, reconstituting to serve as counter-attack forces to contain any German bridgeheads over the river around Sedan.

Failure in the first phase of cavalry employment in Second Army's sector was due to both French mistakes and German strength. Two and a half French divisions attempted to delay the most powerful corps in the German army over too great a distance, both in width and depth. Not only were the French fighting Guderian's three and a half mobile divisions, but they also had occasional contact with two additional panzer divisions advancing on his right (northern) flank. The French did not have the force ratios to successfully delay through the southern half of the Ardennes while maintaining their combat power and cohesion. Once encounter battles transitioned to delay and withdrawal, superior German mobility ensured they would win the race to the next effective defensive position, enveloping it before it could even be occupied. Success would have required a much larger covering force, or a shallower security zone. It was a series of mistakes what would be repeated by the US 14th Cavalry Group at the Losheim Gap in December, 1944.

The French cavalry were even less impressive when it came time to help seal off the penetration of the Meuse around Sedan. The day after the successful German assault crossing of

---

[189] Ibid, 87.

the river, the French 5th Cavalry Division was ordered out of army reserve and placed in a hasty

defense along the Bar River and the Canal des Ardennes to prevent expansion of the bridgehead

to the west and cover the hinge between Second and Ninth Armies.[190] Also on 14 May, the 2nd

Light Cavalry Division was ordered to counterattack along with a French infantry division into

the southern flank of the bridgehead against the 10th Panzer Division.[191] Neither this attack or a

later one ordered in support of the mechanized XXI Corps ever developed as the division was tied

down defending a wooded area and pinned by limited German attacks. The polyglot defense of

the Bar and Canal des Ardennes by the 5th Division and 1st and 3rd Spahi Brigades did not go

much better. French attempts to occupy isolated strong points suffered from a lack of anti-tank

mines, effective anti-tank and artillery support, and the constant threat of envelopment by the

more numerous, mobile, and aggressive Germans.[192] The 3rd Spahi (a regular army brigade

recruited in the North African colonies) did manage to hold up the 1st Panzer Division for a full

day, but at the cost of 50% casualties.[193] A hint of what could have been accomplished was

provided by the reconnaissance squadron from the French 14th Infantry Division. Equipped with

a large number of anti-tank guns, this regular division thrust its cavalry and anti-tank units

forward to cover the Bar while rest of the division force marched to the fight. The squadron

stopped the advance of the panzers, caused considerable chaos and moderate casualties, and then

was forced to fall back by the superior range of the German tanks, artillery support, and

enveloping attacks.[194] But this short engagement demonstrated that equipped with adequate AT

assets the cavalry at least had a chance to accomplish its mission, if adequately supported on its

flanks.

This isolated example of the French cavalry experience in 1940 illustrates a number of

key points. French cavalry organization and equipment were linked to specific missions, terrain,

---

[190] Ibid, 276.
[191] Ibid, 227.
[192] Ibid, 303-304.
[193] Ibid, 305.

93

and opponents, and each level of the Army was provided with a tailored cavalry force ranging from fully mechanized divisions to mounted squadrons little different from their World War One predecessors. The covering force in the Ardennes failed while attempting to operate over too large an area with too little force against a compact, mobile, and dynamic opponent. The hasty defense organized west of Sedan was undone by a lack of anti-tank assets and open flanks. Counterattacks ordered from the south floundered on doctrinal and organizational inadequacy for the task, the morale blows suffered by the cavalry during the security fight and the rapid German assault across the river, and an effective, infantry based security force guarding the German southern flank. French cavalry entered World War II prepared and equipped to conduct reconnaissance, security, and exploitation tasks, never really conducted pure reconnaissance or exploitation missions, and miserably failed to execute the security, defensive, and counter-attack roles assigned by the chain of command.

Soviet Cold War Reconnaissance Doctrine

As a result of the Russian Civil War, Soviet theorists had a solid grasp on the reality of reconnaissance in maneuver warfare by the mid-1920s. Triandafillov wrote:

> Only ground-based reconnaissance will be capable of providing more precise data on what enemy forces have occupied what local points along the army route of advance." "Not only cavalry, but aviation as well, surmounting enemy resistance, battling his security units on land and in the air, are tasked to obtain the necessary information." "Cavalry recon will be even more difficult. It will be able to obtain more or less detailed information only after it has not only overrun the enemy cavalry, but the infantry units protecting it. Therefore, seriously organized recon in force must be conducted. Tasking individual cavalry troops to conduct recon does not promise results of an operation nature. Cavalry must employ regiments supported by powerful artillery (heavy artillery as well) and armored units to conduct recon. High-speed tanks, with the aid of which the cavalry will be able to surmount the resistance of covering enemy infantry units, will strongly assist the cavalry. If tanks are lacking, it is mandatory that heavy artillery and vehicle-mounted infantry reinforce the cavalry.[195]

---

[194] Ibid, 314.
[195] Triandafillov, 103.

From this theoretical background, Soviet thoughts on cavalry and reconnaissance developed along a radically different path than the American model.

Soviet doctrine from near the end of the Cold War provides an excellent alternative to the American approach to cavalry and reconnaissance operations. Cavalry did not exist as a separate branch or organization in the Soviet Army after the elimination of horse units after the Second World War, and this contributed to a solution less encumbered by parochialism. In many ways the Soviet system was a refinement of the German system already examined, with three levels of reconnaissance (strategic, operational, and tactical) and security and economy of force missions assigned to maneuver units rather than special purpose cavalry organizations. The Soviet principles of *razvedka* provide an insightful contrast to the American principles of reconnaissance: continuity, aggressiveness, purposefulness, timeliness, accuracy, and reliability.[196] Aggressiveness is defined as the requirement to penetrate enemy defensive screens, conduct raids, and draw enemy fire in order to conduct effective reconnaissance.[197] Purposefulness and timeliness emphasize focus and the time sensitive nature of information; there is never enough time or assets for all tasks, so the commander must carefully prioritize tasks and accept risk to gain information quickly.

A second major difference between the Soviet and American approach was the unique dual function of Soviet reconnaissance leaders. At each organizational level the Soviet system employed a chief of reconnaissance (COR) in both a command and staff officer role. The COR was in charge of the reconnaissance directorate of five specialized departments and two support agencies at every level from front to regiment.[198] Often the commander of the first department, reconnaissance forces, was also the COR, ensuring that the position afforded staff coordination

---

[196] Department of the Army, *FM 100-2-1, The Soviet Army, Operational Art* (Fort Leavenworth: USA Combined Arms Center, 1990), 6-4. The Soviet term *razvedka* incorporates both the American concepts of intelligence and reconnaissance.
[197] Ibid, 6-5.

authority and command responsibility of the most directly effective element. This approach also institutionalized an understanding that effective intelligence came from a number of disparate but integrated sources all under one central directing authority. Guidance to this reconnaissance directorate flowed from the overall commander, through the chief of staff, to the COR. As an example from the regimental level, the regimental reconnaissance company commander was the COR, and would often receive mission type guidance such as "determine [the] enemy [direct and indirect] fire plan in the area of the main effort [attack axis] by 1200."[199] It was then up to the COR to integrate the efforts of his directorate along with those of the higher level COR (the division reconnaissance battalion commander) and regimental maneuver commanders.[200]

Operational reconnaissance occurred at the front and army level, and tactical reconnaissance at the division and below. A Soviet army employed forward detachments, special operations forces, electronic sources, and air assault forces to gather intelligence; but no specific reconnaissance or cavalry units.[201] Divisions also employed similar assets, with tank battalion and/or air assault infantry battalion forward detachments, but also included their organic reconnaissance battalion with two tracked companies, a long range dismounted company, and a radar and radio detection company, which planned on operating in a box 50 to 100 kms in front of the division.[202] The tracked companies employed a range and mix of vehicles that included BMPs, BTRs, and BRDMs. The COR also integrated (but did not officially own) the reconnaissance elements of the field artillery command, engineer battalion, and chemical

---

[198] Ibid, 6-9. The sub-departments were reconnaissance, agents/spies, special operations forces, collection and analysis, and electronic intelligence. The support agencies consisted of an aerial photo analysis cell and a translation and interrogation cell.

[199] Ibid, 6-11, 6-12/13.

[200] Chiefs of reconnaissance answered both to their immediate maneuver commander and the COR at the next higher level, and often received direct observation taskings from their superior COR.

[201] Ibid, 6-30. The forward detachments were built around regimental or independent brigade sized maneuver units with reconnaissance as a secondary mission in addition to a primary mission to shape the army fight. The front command employed brigades and perhaps divisions as operational maneuver groups (OMGs) to similar effect. The air assault forces came from independent air assault battalions attached to fronts and armies.

[202] Ibid, 6-32 to 34.

company.[203] The regimental recon company contained a tracked platoon, a wheeled platoon, and a direction finding radar, and was expected to operate 25-30 kms in front of the regimental main body. Battalion assets were formed around the three-BMP scout platoon, often supplemented with additional combat recon patrols from the maneuver companies or other battalion specialty platoons.[204] Soviet doctrine was quick to point out that reconnaissance was the primary mission of these forces, not security. Additional groupings could be formed from a variety of sources for a variety of reconnaissance and security purposes, but never for both at the same time.[205] Local security was the responsibility of the maneuver companies and battalions (combat outposts and combat security outposts); security zones the responsibility of company to regimental sized forward detachments directed by division and higher.[206] March security was the responsibility of the advanced guard or flank security detachment, usually formed around maneuver units supplemented with engineers, fire support, and anti-tank units, not specially organized cavalry or reconnaissance forces. Collapsing security zones or covering forces was not the mission of the reconnaissance force, but rather forward detachments or advanced guards.[207]

Ad hoc reconnaissance groupings and detachments would be necessary on a recurring basis. A reconnaissance detachment built around a maneuver company or battalion, reinforced with combat multipliers, could supplement the efforts of the regimental recon company or division recon battalion, providing a heavier, more combat oriented recon force. Independent recon patrols (platoon sized) could operate independently or split off from the recon detachment once it had penetrated the enemy security screen. Recon groups based around infantry or SF squads would infiltrate into the enemy rear by foot, vehicle, helicopter, or parachute and conduct

---

[203] Each artillery battalion included an artillery recon battery with a short and long-range fire finding radar and eight BRDM recon vehicles. The division engineer battalion had a BTR mounted recon platoon, and the chemical company included a mounted chemical recon platoon.
[204] Ibid, 6-41. Depending on the equipment of the battalion, this could include an anti-tank missile platoon, air defense artillery platoon, and automatic grenade launcher platoon.
[205] Ibid, 6-36.
[206] Ibid, 4-121.
[207] Ibid, 6-38.

intelligence gathering, sabotage, and raids. The primary techniques for all reconnaissance forces were: observation, raids, ambushes, and recon by combat. the focus for raids and ambushes the taking of prisoners and the observation of enemy reaction to contact.[208] Stealth and observation were the preferred solution, but Soviet doctrine understand that combat was often necessary at the tactical level in order to infiltrate security screens and gain a certain level of intelligence that passive means could not access.

Due to their divorce from security and economy of force missions, Soviet reconnaissance forces could concentrate on providing relevant intelligence to the maneuver commander. Force structure, organization, and equipment were optimized to this purpose, and a unique, dual role chief of reconnaissance empowered to integrate all available assets. Combat was necessary to power reconnaissance, but it did not get in the way of the primary mission; it was an enabler, not an end into its self. Organization and equipment for the recon force was tailored at each level; the Soviets did not insist on a one-size fits all approach, and the lower the level, the more significant the firepower and survivability of the reconnaissance force. Heavy fighting in security and economy of force missions was left to the maneuver units properly equipped and trained for that role.

---

[208] Ibid, 6-49.

APPENDIX B – US CAVALRY IN DESERT STORM

Desert Storm

During Operation Desert Shield and Desert Storm in 1990-1991, the US Army's cavalry forces were mid-way through a transition in MTOEs and equipment. Division cavalry squadrons were moving from mixed tank and recon tracks to all M3 Cavalry Fighting vehicle configurations, some heavy battalion scout platoons had converted from Bradleys to HUMVs, and a few remaining traditional heavy troops were turning in their M60s for M1s, and M113 family recon vehicles for M3s. Again the Army had voted for a radical change in the philosophy behind cavalry force employment, and again this new vision would be challenged by the concrete experience of war.

The wartime experiences of 2-4 CAV of the 24th Infantry Division from Fort Stewart, Georgia provide a well documented case study of the disconnect between pre-war though and combat execution. Prior to the war, the squadron's focus had been a recent MTOE change and Opposition Force (OPFOR) support to units deploying to the National Training Center (NTC) at Fort Irwin, California.[209] Since conversion to the J series MTOE (two ground troops of three M3 platoons of six vehicles each; two air troops each with six OH-58s and four AH-1 Cobras) in 1987, the squadron had not gone through an external tactical evaluation; their last squadron NTC rotation had been in 1985, and the air troops had never operated tactically with the ground troops. The 1987 MTOE conversion had been driven by a decision to focus division cavalry squadrons on recon and screening tasks rather than the more traditional employment as a heavy, tenth maneuver battalion equipped with tanks and M113 mounted scouts.[210] In addition to the

---

[209] Joseph C. Barto, III, MAJ, *Task Force 2-4 CAV "First In, Last Out": The History of the 2d Squadron, 4th Cavalry Regiment, During Operation Desert Storm.* (Fort Leavenworth, KS: Combat Studies Institute Press, 1993), 3.
[210] Ibid, 5.

equipment and organizational changes, the cavalry squadron was attached to the Aviation Brigade for (at least) garrison command and control.

What at least some senior Army leaders thought of this change was apparent based on MG McCaffrey's immediate modifications to the squadron upon assumption of division command, and his employment of the unit in Southwest Asia. For the war, MG McCaffrey removed the squadron from Aviation Brigade control, attached a tank company, engineer company, and MLRS battery for the majority of the operation, and assigned operational control of the independent cavalry troop (D/4th Cav) from the 197th Separate Brigade.[211] D/4th Cav was still organized as an I Series troop, with two platoons of M60s (replaced by M1s prior to Desert Storm) and two platoons of M113/Improved TOW Vehicle mix, and troop mortar section with three M106 107mm carriers. Additionally, as the offense into Iraq progressed, the squadron internally cross-attached platoons between the tank company and ground cavalry troop, ensuring a tank-Bradley mix in both organizations. The two air troops were detached and assigned to the Aviation Brigade for tactical employment.

These changes to organization were a direct reflection of the hands on management of the squadron by MG McCaffrey, and linked to his concept of the missions he envisioned the unit performing. 2-4 CAV was one of the first units deployed from the division, and one of the first heavy units to become combat operational in Saudi Arabia. The squadron was ordered out into a security zone to cover the build up of combat power in the division from mid-August until their relief by 3rd ACR on 6 October.[212] On 20 December 1990 a division frago established the base line task organization for the squadron for the war, and outlined the envisioned capabilities that the division commander expected of his personal cavalry.[213] The baseline task organization included a J Series ground troop (19 M3s and 3 M106s), an I Series ground troop (9 M1s, 12 M113/M901s, 3 M106s), and a tank company (14 M1s), along with most of an engineer

---

[211] Ibid, 5-6.

[212] Ibid, 7.

company, the division MLRS battery, Stingers, a smoke platoon, and significant division military intelligence assets. It was the division commanders' intent that the squadron would be able to:

1. Conduct 24 hour, all weather reconnaissance
2. Conduct independent security operations with organic combat power
3. Act as the advanced guard for the main body while remaining under an indirect fire umbrella
4. Sustain operations with "plug and play" logistics through any ground brigade or the Division Support Area (DSA)
5. Command and control rapidly changing task organizations while conducting traditional cavalry missions

A final change authorized by MG McCaffrey was the allocation of a fourth field grade officer to serve as the deputy squadron commander and chief of logistics, running his efforts from the Admin/Log Ops Cell in the combat or field trains as he saw fit.[214] This is an internal resourcing decision that has become SOP for many division cavalry squadrons since Desert Storm.

During the war the squadron struggled to master a number of challenges that home station training and the NTC had not identified or emphasized. Logistical support for a separate heavy battalion had never been adequately synchronized, and the squadron was forced to create an ad hoc Forward Logistics Support Team (FLST) pulled from the division Main Support Battalion (MSB) while developing an on-the-fly support relationship with the 2nd Brigade Forward Support Battalion (FSB). Recovery of broken and mired vehicles was another significant problem; the squadron eventually had five UMCPs active along their route of advance through the Iraqi desert.[215] Through January and early February the squadron occupied a 70 x 10 km security zone covering the division's transfer out to the left (western) flank of the invasion force, and witnessed a mass exodus of key squadron leaders that included the squadron commander, executive officer, operations officer, two battle captains, intelligence officer, and operations sergeants major. The squadron executive officer during the war implies that at least

---

[213] Ibid, 11.
[214] Ibid, 17.

some of these leaders were fired for incompetence.[216] Due to the length of the security zone

mission, battalion scout platoons (still equipped with M3s in 24th ID) were attached to the

squadron to allow organic platoons time to rotate to the rear for sustained maintenance, training,

and a break from continuous pressure of active operations. The squadron had tactical control of

its air troops and an Apache company for the duration of this phase of the operation. The

squadron also obtained six civilian land cruiser trucks for stealth reconnaissance of the border

area. This operation was micro-managed by the ADC(M), BG Scott, with a daily division R&S

meeting at the squadron TOC, including representatives from the aviation brigade, ground

brigades, G2 and G3, and MI Bn commander.[217]

On 19 February 1991 the squadron was relieved of security zone responsibilities by the

ground brigades, allowing the squadron a few days to prepare for their advanced guard role in the

coming attack. Despite the sense of massive effort and confusion in the executive officer's

historical account, the squadron eventually only participated in two small firefights, had no direct

fire contact while performing their two security zone missions, suffered no fatalities, and rapidly

became a non-factor in the division's fight. The primary concerns centered around reacting to

division fragos, repositioning the squadron relative to the division main body, and fuel resupply,

particularly for the M1 tanks.[218] After leading the division to the Euphrates River Valley, the

squadron assisted the forward passage of the maneuver brigades and took up a series of flank

security missions and then acted as the division reserve, working under the control of all three

ground brigades at one time or another. As the war came to an end the squadron was assigned to

secure the Division Support Area (DSA) and the Main Supply Routes (MSR) radiating from this

location to the brigades and battalions.

---

[215] Ibid, 18.
[216] Ibid, 23-26.
[217] Ibid, 36.
[218] Ibid, 62-64.

The range of intelligence sources mentioned XO is instructive: a 100km aerial route recon flown by the squadron command a few days before starting the attack, a Bedouin family that wandered into the division security zone from Kuwait into Saudi Arabia, interrogation of enemy prisoners of war, and listening to the BBC on a private short wave radio.[219] He also mentions problems with the range of the FM radios and a lack of liaison officers (LNO) to pick up lengthy division fragos with overlays that could not be relayed on the radio. The designated LNO was unavailable near the end of the war because he was at the division main command post back in Saudi Arabia, which had never jumped forward with the lead combat elements. The squadron signal officer was pressed into duty as an LNO in his absence.[220]

The list of squadron lessons learned expressed from the XO's perspective offers a glimpse into the mind of the "average" cavalryman's thought process. "The mechanized division commander's 'eyes and ears', his 'household cavalry', is the division cavalry squadron. This is not an assertion but a statement of fact among the senior mechanized warriors of the Army."[221] The actions of one division commander do not prove a trend, but this conclusion seems logical. Major Barto then asserts that the Army must move to a common cavalry troop modeled on the two tank and two M3 platoons of the ACR variety, with three ground troops per division squadron. The logic of why this is necessary is not argued, just an assertion that is faith based, and probably linked to the "good old days". Interestingly enough, this is precisely the MTOE that was adopted soon after the war.

Major Barto was more than happy to give up the helicopters from the squadron, perhaps based on the limitations of the Kiowa and Cobra airframes during the harsh weather of February in Iraq. He cites weather conditions that prevented effective flight operations for 40 of the 100 hours of Desert Storm.[222] The OH-58D in current cavalry squadrons has gone a long way to

---

[219] Ibid, 39, 46, 68.
[220] Ibid, 86.
[221] Ibid, 116.
[222] Ibid, 116.

address this concern, and helicopters were listed as a significant combat multiplier by 3-7 Cav in Operation Iraqi Freedom.[223] Major Barto mentions that the aviation assets in a cavalry regiment are in a separate squadron and therefore they should be a division rather than squadron asset, under aviation brigade control.[224] The squadron itself should be a separate element with no formal ties to the aviation brigade. Interestingly, Major Barto never mentions where B Trp, 2-4 Cav was for the duration of the war, and the reason it was detached from the squadron. He also feels no need to justify his recommended organizational changes, or explore the possibilities presented by better weather, different terrain, or a more innovative employment of the entire aviation brigade as organized in 1990 as a deep, shaping force for the division, perhaps acting as an operational maneuver group (OMG).

The story of 2-4 Cavalry is not the story of the entire US Cavalry in Desert Storm, nor is it even representative of the collective experience. 2nd and 3rd ACRs served with distinction, participated in fierce combat, and emerged from the war as validated organizational constructs. Battalion scout platoons in Bradleys seemed to excel; those in unarmored HMMWVs had a mixed record. Desert Storm was the worst possible scenario for wheeled, unarmored stealth recon forces. The terrain afforded virtually no cover or concealment, off road mobility was difficult, with tracked vehicles getting stuck in some areas, and the tempo and short duration of the war allowed no pauses to allow stealth recon to infiltrate into the enemy rear. Some battalion commanders were unwilling to risk their unarmored scouts in the traditional position in the front of the formation, worried about their survival in initial contact with enemy armored vehicles and getting stuck in the cross fire between enemy and friendly tanks and infantry fighting vehicles (IFVs).[225] What 2-4 Cav's account does provide is a glimpse into the roles and missions

---

[223] J.D. Keith, Major, "3d Squadron, 7th U.S. Cavalry Up Front: OIF Lessons Learned", *Armor*, Sept/Oct 03, 26-27.

[224] Ibid, 117.

[225] COL Doug Tystead, interviewed by the author 7 November 2003 at the Armor/Cavalry Ball, Fort Leavenworth, Kansas. COL Tystead commanded a tank task force in Tiger Brigade, 2nd Armored Division during Desert Storm. His scout platoon had recently turned in their M3s for HMMWVs.

envisioned by a representative division commander, the real challenges faced by a squadron in one facet of war, and the conclusions reached by one of its senior officers as a result of the experience.

The other side of the story is told by what the Army did within its cavalry organizations after the war. As part of the general draw down of the US Army enabled by the end of the Cold War, the 2nd and 11th ACRs were deactivated. Heavy division cavalry squadrons transitioned to the MTOE described by Major Barto (while retaining their air troops and relationship with the aviation brigade), and battalion scout platoons universally transitioned to the HMMWV. The institutional conclusion seemed to be that the Army had its cavalry force just about right, except for the requirement to resource division squadrons with tanks and an additional troop. The leadership of the Army voted heavy, combat oriented cavalry at the division and corps level, and light stealth cavalry in the battalion. Issues with brigade level reconnaissance and a lighter cavalry regiment to support rapid deployment forces would be an issue for the Army of the mid-90s.

BIBLIOGRAPHY

Barto, Joseph C., III, MAJ. *Task Force 2-4 Cav – "First In, Last Out": The History of the 2d Squadron, 4th Cavalry Regiment, During Operation Desert Storm.* Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1993.

Belonus, Frank R., SFC. "Building on Force XXI Task Force and Brigade Recon Troop Scout Platoons." Armor, November-December 2000, 7-15.

Belonus, Frank R., SFC. "The Evolution of Reconnaissance in the 21st Century." *Armor*, March-April 2002, 20-24.

Benson, William E, CPT. "The Cavalry Paradigm: We Aren't Training as We Intend to Fight." *Armor*, July-August 2001, 8-15.

Benson, Kevin C.M., COL. "Cavalry for the Interim Force." *Armor*, January-February 2002, 15-18.

Corum, James S. "A Comprehensive Approach to Change: Reform in the German Army in the Interwar Period." In *The Challenge of Change: Military Institutions and New Realities, 1918-41.* ed. Harold R. Winton and David R. Mets. Lincoln: University of Nebraska Press, 2000.

DiMarco, Louis, MAJ. "The U.S. Army's Mechanized Cavalry Doctrine in World War II." MMAS thesis, U.S. Army Command and General Staff College, 1981.

Doughty, Robert Allan. *The Breaking Point: Sedan and the Fall of France, 1940.* Hamden, CN: Archon Books, 1990.

_____. *Seeds of Disaster.* Hamden, CN: Archon Books, 1985.

Grange, David L., BG, LTC Richard D. Liebert, and MAJ Chuck Jarnot. "Airmechanization." *Military Review*, July-August 2001, 10-21.

Green, Matthew K., MAJ. "Operational Reconnaissance: The Missing Link?" Monograph, School of Advanced Military Studies, 2003.

Greenfield, Kent Roberts, Robert R. Palmer, and Bell I. Wiley. *The Organization of Ground Combat Troops.* United States Army in World War II Series. Washington, D.C.: Historical Division of the United States Army, 1947.

Guderian, Heinz, MG. *Achtung Panzer.* Translated by Christopher Duffy. Arms and Armor: London, 1992 [1937].

Guderian, Heinz Gunther, MG. *From Normandy to the Ruhr: With the 116th Panzer Division in World War II.* Translated by Ulrich Abele, Esther Abele, and Keith E. Bonn. Bedford, PN: Aberjona Press, 2001.

Hall, Wayne Michael, BG. *Stray Voltage: War in the Information Age*. Annapolis, MD: Naval Institute Press, 2003.

Harris, Michael J., MAJ. "3D Armored Cavalry Regiment as an Operationally Significant Force." Monograph, School of Advanced Military Studies, 1999.

Holman, Victor, MAJ. "Cavalry Operations in Support of the Force XXI Commander." Monograph, School of Advanced Military Studies, 1996.

Hopkins, Yvette C., MAJ. "Putting the RSTA O&O to the Test: Burma 2004." Monograph, School of Advanced Military Studies, 2001.

Howard, Bart, LTC, and CPT Jeff Ramsey. "Employing the Brigade Reconnaissance Troop." *Armor*, March-April 2002, 17-19.

Jacobi, Kevin L., MAJ. "Battle Command to ISR Planning." *Armor*, September-October 2002, 21-25.

Kasales, Michael C., MAJ. "The Reconnaissance Squadron and ISR Operations." *Military Review*, May-June 2002, 52-58.

Lind, William S. "The Theory and Practice of Maneuver Warfare". In *Maneuver Warfare, An Anthology*. ed. Richard D. Hooker, Jr. California: Presidio Press, 1994.

Lombardo, Charles T., CPT, and MAJ Samuel A. Butzbach. "Counterreconnaissance in the 21st Century: Developing and Defending the Security Zone in the Current Limited Conversion Division Configuration." Armor, November-December, 2002, 7-13.

Luck, Hans von, COL. *Panzer Commander.* New York: Dell Publishing, 1989.

MacDonald, Charles B. *A Time for Trumpets: The Untold Story of the Battle of the Bulge*. New York: William Morrow and Co., 1985.

Meyer, David A., CPT. "On a Wing and a Prayer: Reversing the Trend in BCT ISR and Shaping Operations." *Armor*, July-August 2003, 21-25.

Morrison, Douglas J., MAJ. "Tactical Reconnaissance in Peace Operations: Implications for the Future." Monograph, School of Advanced Military Studies, 1994.

Oberkommando der Heers. *Truppenfuhrung*. Translated and published by the CGSC Press in 1936. Berlin: E.S. Mittler, 1933.

Olinger, Mark A. "Vietnam-Supply Operations and Security Lessons Learned." *Quartermaster*, Summer 1998, 1-10.

Palmer, Robert R., Bell I. Wiley, and Willaim R. Keast. *The Procurement and Training of Ground Combat Troops.* United States Army in World War II Series. Washington, D.C.: Office of the Chief of Military History, 1948.

Rago, Louis B., II. MAJ. "Cavalry Transformation: Are We Shooting the Horse Too Soon?" Monograph, School of Advanced Military Studies, 2002.

Roubal, Richard S., CPT. "OPFOR Brigade Reconnaissance Company Techniques…and How to Defeat Them." *Armor*, January-February 2001, 38-40.

Shaw, Eric B., CPT. "Breaking the Reconnaissance Code." Armor, November-December 2001, 39-40.

Stanley-Mitchell, Elizabeth A. "The Digital Battlefield: What Army Transformation Efforts Say About Its Future Professional Jurisdiction." In *The Future of the Army Profession*, Ed. Don M. Snider and Gayle L. Watkins. New York: McGraw-Hill Primis Custom, 2002, 127-154.

Starry, Donn A., GEN. *Armored Combat In Vietnam.* Indianapolis: Bobbs-Merrill Company, Inc., 1980.

Stawasz, John M., MAJ. "Light Division Cavalry and Low-Intensity Conflict Reconnaissance." Monograph, School of Advanced Military Studies, 1992.

Sumner, Edwin M., COL, ed*. Modern Reconnaissance.* Harrisburg, PA: Military Service Publishing Co., 1944.

Thompson, Scott K., CPT. "Focused Reconnaissance and Developing Battlespace in the Armored Cavalry Troop." *Armor*, March-April 2003, 13-19.

Triandafillov, V.K. *The Nature of The Operations of Modern Armies.* Translated by William A. Burhans. Portland, OR: Frank Cass, 1994 [1929].

Tully, John N. CPT. "Doctrine, Organization and Employment of the 4th Cavalry Group During World War II." MMAS thesis, U.S. Army Command and General Staff College, 1994.

US Army. "Optimum Mix of Armored Vehicles for Use In Stability Operations." Vol I. San Francisco: Army Concept Team in Vietnam, 1971.

US Army. *United States Army White Paper: Concepts for the Objective Force.* Washington D.C.: Department of the Army; available from http://www.objective force.army.mil/pages/objectiveforcewhitepaper.pdf; internet; accessed 23 Oct 02.

US Army. *FM 2-20, Reconnaissance.* Washington D.C.: Department of the Army, 1944.

US Army. *FM 3-0, Operations.* Washington D.C.: Department of the Army, June 2001.

US Army. *FM 3-90, Tactics.* Washington D.C.: Department of the Army, July 2001.

US Army. *FM 17-95, Cavalry Operations.* Washington D.C.: Department of the Army, December 1996.

US Army. *FM 34-1, Intelligence and Electronic Warfare Operations.* Washington D.C.: Department of the Army, September 1994.

US Army. *FM 100-2-1, The Soviet Army, Operational Art.* Fort Leavenworth, KS: United States Army Combined Arms Center, 1990.

US Army. *FM 101-5-1, Operational Terms and Graphics.* Washington D.C.: Department of the Army, September 1997.

US Army. *TRADOC Pamphlet 525-3-90/O&O: The United States Army Objective Force, Operational and Organizational Plan for Maneuver Unit of Action.* Fort Monroe, Va: U.S. Army Training and Doctrine Command, 22 July 2002.

U.S. Department of Defense. *Joint Pub 3-55: Doctrine for Reconnaissance, Surveillance, and Target Acquisition Support for Joint Operations (RSTA).* Washington D.C.: Department of Defense, 1993.